Railway Age Gazette

Including the Railroad Gazette and the Railway Age

PUBLISHED EVERY FRIDAY AND DAILY EIGHT TIMES IN JUNE, BY THE
SIMMONS-BOARDMAN PUBLISHING COMPANY,
83 FULTON STREET, NEW YORK.

CHICAGO: 417 South Dearborn St. CLEVELAND: Citizen's Bldg.
LONDON: Queen Anne's Chambers, Westminster.

E. A. SIMMONS, *President.*
L. B. SHERMAN, *Vice-President.* HENRY LEE, *Sec'y & Treas.*
The address of the company is the address of the officers.

EDITORS.

SAMUEL O. DUNN, *Editor.*
BRADFORD BOARDMAN, *Managing Editor.*
ROY V. WRIGHT
B. B. ADAMS
E. T. HOWSON
G. L. FOWLER
WILLIAM FORSYTH
W. E. HOOPER
H. F. LANE
H. H. SIMMONS
R. E. THAYER
F. W. KRAEGER
E. S. FAUST
S. W. DUNNING

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free:

United States and Mexico.....$5.00
Canada 6.00
Foreign Countries (excepting daily editions)..... 8.00
Single Copies .....15 cents each

Engineering and Maintenance of Way Edition and the four Maintenance of Way Convention Daily issues, North America, $1.00; foreign, $2.00.

Entered at the Post Office at New York, N. Y., as mail matter of the second class.

VOLUME 52. JUNE 14, 1912. NUMBER 24.

CONTENTS

EDITORIAL:
Editorial Notes 1329
The Tap Line Cases 1330
Canadian Railway Policy and Its Results..... 1331
New Books 1332

LETTERS TO THE EDITOR..... 1332

ILLUSTRATED:
A New Type of Steel Passenger Car..... 1334
Relation of Temperature and Section to Rail Failures..... 1337
The Retirement of James J. Hill..... 1342

MISCELLANEOUS:
Railway Telegraph Superintendents' Meeting..... 1338
A Contractor's Views on Railway Contracting..... 1345
Electrification of Railway Terminals; by W. F. M. Goss..... 1347
Railway Signal Association..... 1349
Foreign Railway Notes.....1333, 1337, 1349

GENERAL NEWS SECTION..... 1350

A CONTRACTOR bidding on railway work is frequently confronted with the necessity of accepting very undesirable conditions in his contract in order to receive equal consideration with other firms that are willing to take work on almost any basis; firms who hope to evade as much of the contract as possible and get the work finished "some way." The conditions which are complained of in the article published elsewhere in this issue are not defensible on the grounds that they safeguard the company's interest and secure better work, for in most cases blanket clauses, exorbitant demands, ambiguous specifications and incompetent inspection, invite deceit, trickery, and continual controversy on the part of the contractor, and as the engineer in charge must realize the injustice of such conditions, he comes to expect that the contractor will slight some of the requirements and often unconsciously allows unsatisfactory work to pass. No contractor should place a bid on work at a price below the actual cost of doing the work and an engineer should never consent to let a contract at such a price, as trouble is almost inevitable and poor work must be expected. The reliable contractors in business today are no more and no less honest than railway engineers. If they could take contracts under clear, concise specifications which would demand only reasonable perfection of work and could know that the work would be inspected by capable, experienced men, they could afford to place lower bids because the large risks incident to the carrying out of a contract under certain conditions would be removed. The suggestions made by Mr. Greensfelder that controversies between contractor and engineer should be settled by reference to a board of arbitration may deserve consideration, but there should be little cause for complaint on the part of the contractor if an engineer who maintains a judicial attitude is given the sole power of arbitration. No one can know the conditions as well as the engineer, and no one is so well qualified to distinguish between the letter and the spirit of the specifications. He must maintain an attitude of helpfulness and refrain from unwarranted criticism to get the best results from any good contractor. The growing tendency for contractors to employ trained engineers should improve the relations between engineer and contractor, for, as they understand each other better they cannot but realize, on the one hand, that it pays to prepare good specifications, inspect the work competently and pay promptly and fully, and on the other hand, that nothing is gained by evasion of contracts and petty controversies over methods and materials.

THE three decisions rendered by the Supreme Court of the United States last week reversing decisions rendered by the Commerce Court, give a hard blow to the prestige of the latter. We believe that the Supreme Court has as yet decided only four cases that have been appealed to it from the Commerce Court, and that it has reversed it in every one. The conclusion will inevitably be drawn that these developments tend to justify the criticisms of the Commerce Court that have been made by the Interstate Commerce Commission. However, the implication of the commission's criticisms has been that the court was unduly favorable to the railways; and, whether significant or not, it is an interesting fact that in two of the four cases in which the Supreme Court has overruled the Commerce Court, the decisions of the latter were favorable to shippers, and the reversals are unfavorable to shippers. While the decisions of the Supreme Court do not tend to uphold the commission's view that the Commerce Court has been pro-railway, they do seem to uphold the commission's view that the Commerce Court has been encroaching on the functions that Congress delegated to the commission. The decisions of the Supreme Court have heartened those in Congress who have been seeking legislation to abolish the Commerce Court. But are the decisions of the Supreme Court an argument for such action? They show at least that the Commerce Court is not very dangerous from any point of view, because they show that the Supreme Court is just as sure to overrule it when it thinks it is wrong as it ever was to overrule the circuit courts or the commission; and, of course, every decision of the highest court establishes a precedent which will in future bind the lower courts, whether district courts, the circuit courts of appeals or the Commerce Court. From the railway point of view it is probably a matter of small consequence whether the Commerce Court shall be retained or destroyed. For railways and shippers it is a convenience to have all appeals from the Interstate Commerce Commission go to a single tribunal, both because its decisions are more apt to be consistent than those of a number of

courts, and because under the present arrangement litigation is expedited more than it was under the former one. If, on the other hand, the Commerce Court is not going to show itself a more expert tribunal than the other federal courts in passing on commerce cases, one of the strongest arguments for its creation and retention will be nullified. The decisions are even more interesting from the political than from the business standpoint. They are not only a blow to the prestige of the Commerce Court, but also one to that of President Taft, who was chiefly instrumental in securing its creation. However, President Taft has also appointed a clear majority of the present Supreme Court, which seems to have some bearing on the matter, regardless of one's point of view.

OUR esteemed contemporary, the Syracuse (N. Y.) *Post-Standard*, says, "Why news of accidents should be regarded by newspapers as more interesting than other information about the operation of railways, strikes the *Railway Age Gazette* as mysterious." The *Post-Standard* does us injustice. We did not say that this struck us as mysterious. We merely said that it impresses railway officers as being significant of the attitude of the newspapers. There is mighty little about the attitude of the newspapers that strikes the *Railway Age Gazette* as mysterious, simply because it has on its staff men who have served for years both in the news departments and on the editorial pages of some of the largest metropolitan newspapers in this country. Nor does the fact that newspapers should want to print news about railway accidents seem to us blameworthy. As the *Post-Standard* says, the news of a wreck has human interest. It is also a matter of public moment. And so long as the truth is told about accidents no one can justly complain, regardless of how fully it is told. The *Railway Age Gazette* always has contended that railways should give to the press the facts about accidents just as soon as they get them, and without reservation. We have always believed that falsification by railway men in the long run did the railways harm. We have also believed, however—strange as it may seem—that when the newspapers are given the facts about accidents or any other railway matter they should publish the facts, and nothing but the facts. Is there anything worse in railway men lying to the newspapers about accidents than there is in the newspapers lying to their readers about them? It is not *that* the newspapers print news about accidents or other railway affairs, but *the way* they often print it that it is frequently open to criticism. We have searched the ninth commandment and have been unable to find wherein it makes any exception either of the bearing of false witness by newspapers or the bearing of false witness against any kind of a neighbor, even though a railway. Mind you, we are not implying that most newspapers falsify regarding accidents or anything else pertaining to railways. But since we are on the subject, we had just as well set down the cold, incontrovertible fact that some newspapers do lie about them, and do so deliberately, habitually and shamelessly. The same thing is true of some magazines and magazine writers. A consistent policy of falsification can only be the result of premeditation. It is not an unheard of thing for a railway man to give an interview or deliver a speech, and read in some of the newspapers the next morning a report which makes him say exactly the opposite of what he did say. If certain newspapers were responsible in damages for all of the carefully-planned butting collisions, with the truth that occur in their columns, to the extent that the railways are responsible for the accidents that happen on their lines, a single issue would throw them into irretrievable bankruptcy. It is this sort of thing that makes many railway men reluctant to give out news or interviews about accidents or anything else pertaining to the railway business. However, regardless of the conduct of the disreputable and scrupulously untruthful minority of newspapers, we hold to the opinion that the more news of all kinds, good and bad, that railway men give to the newspapers the better it will be for the railways. The number of facts about the railways that reflect credit on their managements is so much greater than the number of facts about them that reflect discredit on their managements that the more frank railway men are with the press, the more certain they are to secure fair treatment from the great majority of decent newspapers, and neither a policy of candor nor one of suppression will get them fair treatment from the other kind.

THE TAP LINE CASES.

THE vitally important duty of correcting and preventing unfair discriminations the Interstate Commerce Commission has been performing in recent years with a courage, energy and ability that merit the warmest commendation. No better example of its work along this line has been afforded than its investigations and reports regarding the payment of allowances by trunk lines to tap lines. One must read the commission's reports before he can appreciate how difficult a task it is to determine when a trunk line railway may be justified in giving an industrial railway a division of a through rate, or in paying it for the rendering of a switching service. And after it has been decided that the industrial railway should be paid something it is almost equally hard to determine how much that something should be.

It was at one time quite generally assumed that any industrial railway which was organized as a separate railway corporation could legally be paid by a trunk line for switching the goods of those who owned it to the trunk line. The commission in its report shows clearly that this is not so, and why it is not so. It has been contended that any railway that holds itself out as a common carrier is entitled to share in through rates. But the commission shows by unanswerable logic that it is not the holding out as a common carrier, but the actually being one that counts. It has been contended that where there is identity of ownership between an industrial concern and an industrial railway any payment by the trunk line to the industrial railway is a rebate. The commission clearly shows, however, that the fact of identity of ownership is not conclusive, but that the decisive point is whether the payment of the trunk line to the industrial railway is so made, or is of such amount, as to enable the industrial concern, in effect, to ship its goods for less than the published tariff. It is not the payment of an allowance to an industrial railway, or even to the industrial concern that owns the industrial railway, for the rendering of a real service, that is unlawful, but the payment of it in such circumstances or in such amount as to make it partially or wholly a refund from the published rate for no service at all or for a service which has not cost as much to render as the refund amounts to.

At the stage which the tap line matter has now reached the question of whether any particular allowance is or is not lawful becomes almost, if not quite, solely one of fact. To ascertain the facts as to any particular tap line requires the most thorough investigation. After the facts have been ascertained the determination of what allowance, if any, should be permitted to be made requires the exercise of sound judgment. In many cases the commission has indicated that the payment of allowances should be stopped entirely, in many others it has ordered them substantially reduced. One of the important effects of its findings will be to increase railway revenues. Commissioner Harlan estimated that the total payments of railways to tap lines have amounted to from $50,000,000 to $60,000,000 a year. If all the unfair discriminations shall be corrected by no means all of this amount will be saved to the roads, as some of the allowances would not be abolished, and many others will only be reduced. The abolition or reduction of only those that

have been improper will, however, substantially increase railway revenues. Complaint often has been made that the interstate commerce law gives the commission authority, when it finds an adjustment of rates unfairly discriminatory, only to correct the discrimination by reducing the higher rates. This is a just complaint. When, however, the discrimination actually amounts to rebating the effect of its abolition is to benefit the roads by increasing their net revenues, and certainly there is no better way, from the standpoint of the railways and the public or the majority of shippers, for railway net earnings to be increased than by the reduction or abolition of unfair discrimination. There still are a good many unfair discriminations, but the combined efforts of the commission, of the shippers who are injured by them, and of the railways are steadily reducing the number.

One of the interesting and not unimportant results of the tap line inquiry and order will be the withdrawal of free railway transportation from officers of industrial railways who also are officers of the industrial concerns owning the tap lines. The exchange of transportation by tap lines and trunk lines has been an obvious abuse, the "exchange" being merely nominal because while the officers of the tap lines have made plenty of use of their transportation on the trunk lines the officers of trunk lines have, of course, made practically no use of their transportation on the tap lines. When the officer of the tap line has been an officer also of an industrial concern the effect of the giving of free transportation to him has been perfectly plain.

CANADIAN RAILWAY POLICY AND ITS RESULTS.

IT is well known that it is the policy of the Canadian government to encourage railway construction, and that this policy has been manifested by the granting of large subsidies. It is probable, however, that few realize the amount of the government aid that has been given, not only in the form of direct cash payments, but in land grants and guarantees of bonds.

The latest figures on this subject have been compiled in the "Railway Statistics of the Dominion of Canada for the year ending June 30, 1911," issued by the Department of Railways and Canals. Up to the close of the fiscal year 1911 $148,217,071.75 in subsidies had been given by the Dominion government; $35,919,360.16 by the provincial governments, and $18,042,823.60 by municipalities. In each case the greater part of these amounts has been in the form of direct cash subsidies. The total for the Dominion includes $79,695,164.62 in cash subsidies, $25,576,533.33 in loans, $37,785,319.97, representing the cost of lines handed over to the Canadian Pacific, and $5,160,053.83 paid to the Quebec government. Cash subsidies given by the provinces have amounted to $32,869,330.16, and by the municipalities to $12,798,824.98, the other grants including loans and subscriptions to shares.

Land grants to the railways have amounted to 55,256,429 acres, of which 32,004,486 acres have been given by the Dominion, and the remainder by the provinces of Quebec, British Columbia, New Brunswick and Nova Scotia. Both the Dominion and the various provincial governments have given material assistance to railway enterprise by guaranteeing the interest on bonds, and in some instances by guaranteeing the principal also. The total amount of such guarantees by the Dominion is $52,439,865, representing assistance to the Canadian Northern and the Grand Trunk Pacific. The guarantees by the provinces include $20,899,660 by Manitoba, $25,743,000 by Alberta, $11,999,000 by Saskatchewan, $7,860,000 by Ontario, $23,196,832 by British Columbia, $700,000 by New Brunswick, $476,000 by Quebec, and $5,022,000 by Nova Scotia.

It is not surprising that such a liberal policy of aid, coupled with a policy of regulation much less drastic than that now obtaining in the United States, is causing rapid progress in new construction in Canada, which presents a marked contrast to the conditions in this country, where railway building has about stopped. In 1907 the mileage reported in operation in Canada was 22,452. In 1910 it was 24,731, an increase of 10 per cent. In the same years the railway mileage of the United States, as reported by the Interstate Commerce Commission increased from 229,951 to 240,458, a gain of but 4 per cent. In 1911 the mileage officially reported as under operation in Canada was 25,400 miles, an increase of more than 13 per cent. over 1907. The corresponding total for the United States is not yet available. However, the increase in operated mileage by no means tells the whole story. The official figures show that on June 30, 1911, there was under construction, or in actual operation but officially regarded as still under construction, no less than 11,633.47 miles in the Dominion. Of this total 6,222.63 miles was graded or being graded, on 3,833.34 miles track was laid or was being laid, and 1,577.50 miles was in operation. If all of this mileage should be in operation on June 30, 1912, the operated mileage of the Dominion would amount to 37,033.47 miles, an increase since 1907 of 14,581.47 miles, or 64.5 per cent. In the United States the railway mileage built in 1911, according to the reports compiled by the *Railway Age Gazette*, was 3,066.

The provinces in Canada where the greatest amount of railway construction has been going on are the western provinces of Manitoba, Saskatchewan, Alberta and British Columbia. In 1911 the total railway mileage in operation in these provinces was 9,973, having increased 23 per cent. since 1907, when the total was 8,108. In the states in this country directly adjacent to those provinces, Minnesota, North Dakota, Montana, Idaho and Washington, the total mileage increased from 21,070 in 1907 to 24,131 in 1910, or 14.5 per cent., and in the calendar year 1911, according to our annual statistics, the new construction in these states amounted to but 606 miles. The official Canadian statistics show that in the four western Canadian provinces alone 7,178 miles of new line was under construction at the close of the fiscal year 1911, which exceeds by about 3,000 miles the entire new mileage added to the railways of Minnesota, North Dakota, Montana, Idaho and Washington since 1907.

Canada has adopted the kind of a policy that is most conducive to the rapid railway construction which is needed to bring about the fullest development of its great resources. It is true that railways in this country were accorded far more liberal treatment than at present during that stage of their history which more nearly corresponds to the present period of Canadian railway history, and were given financial aid as well as moral and legislative support; but the government aid to railways in this country was never on such a scale as it is in Canada.

The railways of the United States do not now ask to be subsidized. They merely ask that railway regulation be such as not to drive investors out of the railway field. If the United States were not still in need of additional railway development, not only in the way of new lines, but also of additional tracks, terminals and equipment to keep pace with the increasing requirements of commerce and the growing demand for safer operation, the reasons for the difference between the railway policy of Canada and of this country might be more apparent. Instead of trying to restrict returns on railway investment to a maximum, as is done in this country, our northern neighbors guarantee a minimum return on a large part of the investment. Instead of obliging railway investors to take both the ordinary risks of investment and the risks of unintelligent and often unfair regulation, they refrain from improving the risks of unfair regulation and share with the investors the ordinary risks of investment. As long as the striking differences between the railway policies of the two countries obtain, the striking difference between the figures regarding their rates of railway development doubtless will continue.

NEW BOOKS.

Valuation of Public Utility Properties. By Henry Floy, consulting engineer. 390 pages, 6½ in. x 9½ in. Bound in cloth. Published by the McGraw-Hill Book Company, 239 West 39th street, New York. Price, $5, net.

Probably it is not stating the facts too strongly to say that Mr. Floy's book should be in the hands of every person in any degree concerned with the valuation of public utilities, whether they be connected with public utilities, or with regulating commissions, or be merely students of the subject of public regulation of public utilities. It is a book for the practical man as well as for the student. The making of valuations is considered at once from the standpoint of the economist, the lawyer, the engineer and the accountant. We are told how from the economic standpoint they ought to be made, how from the legal standpoint they must be made, and how the accountant and the engineer should proceed to meet the requirements of both law and economics. Mr. Floy is an engineer, but his writings disclose a thorough familiarity with the economic discussions and the decisions of the court in reference to his subject. The book is replete with examples of valuations that actually have been made and the methods pursued, and several of the instances referred to are those of valuations of steam railways. For example, in the last chapter the scheme adopted in valuing the Northern Pacific in the state of Washington is described.

Structural Design: Vol. 1: Elements of Structural Design. By Horace R. Thayer, assistant professor of structural design, Carnegie Technical Schools. Published by D. Van Nostrand & Co., New York 6 in. x 9 in. 221 pages. Illustrated. Cloth binding. Price, $2.00.

This new volume on structural design has been prepared primarily as a text book for use in technical schools, and the author has tried in the light of his experience as a teacher, and in practical work, to include elementary structural subjects so concisely that they can be covered in the time usually allotted in such schools. The book presupposes a knowledge of mechanics, stresses and the mathematics on which they depend. The volume is divided into five chapters: Materials, Commercial Shapes, Wooden Structures, Fabrication of Structural Steel and The Engineering Department. It is intended to follow this volume with a second one on the design of simple structures, covering plate girders, viaducts, truss bridges, mill buildings, office buildings and standpipes, and a third on the design of advanced structures, covering cantilever, movable and suspension bridges and arches. The methods of presentation seem to be well adapted to the needs of students and by eliminating tables and other data usually included in handbooks, the volume is made to cover a wide range of subjects.

The Modern Locomotive. By C. Edgar Allen. 175 pages, 4¾ in. x 6½ in. Flexible cloth. University Press, Cambridge, England; for sale by G. P. Putnam's Sons, New York. Price, 40 cents.

The treatment of the modern locomotive in this little volume is confined almost entirely to European practice, and it relates largely to locomotive performance rather than to its design and construction. The author has succeeded in presenting an interesting and authoritative account of locomotive performance, although it is necessarily limited and concise. It is not intended for the specialist, but rather for that numerous class which has some knowledge of mechanics and science, and finds the locomotive an interesting machine. To such readers the work is admirably adapted. After a brief account of the development of the British locomotive, considerable space is devoted to combustion, steam generation, superheating, compounding, boiler improvements and the utilization of steam. There is an excellent chapter on counter-balancing and stability, and one on performance and speed. Though the price of the volume is only 40 cents, it contains more information on the locomotive than many of the popular treatises published in this country which are larger and cost several times as much.

Letters to the Editor.

THE RAILWAY LABOR SITUATION.

Montreal, May 27, 1912.

To the Editor of the Railway Age Gazette:

I have been reading with interest your editorials dealing with this subject. In your issue of March 1, page 367, you refer to the question of labor saving devices, and their effect on the number of men employed. There is an example in that connection that I would have been glad to have seen you use. There is no trade in which labor-saving devices have been more largely introduced than that of boiler making and repairing, yet there has never been a time since boilers were first used when boiler makers were so hard to get, and naturally so highly paid. Indeed, the condition is such that if it were not for these labor-saving devices I do not see how we could today go on using boilers. This may be ploughing old ground, yet we have not fully learned the lesson, as witness the efforts still made to resist the introduction of such devices.

But "whom the Gods would destroy they first make mad"; and that we are mad today who that thinks can doubt? Once we got away from the first principle of reward in proportion to value of service rendered we traveled fast on the road that leads to destruction. The first cry of him who considers himself the underdog has always been a protest against special privileges to classes. And because there was considerable truth in the charge that certain classes had special privileges, this cry became a strong weapon in the hands of those who felt they were denied even their actual rights, to say nothing of special privileges. Making use of this weapon has, since the middle ages, steadily advanced its lines of attack against the stronghold of special privileges, until that condition, as it had existed, practically ceased to exist.

This was, and is, the general condition today. But in the railway world there had grown up a specially privileged class from the ranks of labor itself that is infinitely worse than the hereditary specially privileged classes that labor as a whole fought against for so many years. The reasons why this specially privileged class is worse than the old are many. The old, when it existed at all, was a passive force, and really robbed no one in particular. The new is an aggressive force that first robs directly its fellow laborer, and indirectly the whole of society. I refer here to the train crew, meaning all men on trains, but more particularly the engine driver, conductor and brakemen.

It would seem that the transplanting of the Anglo-Saxon race from the older countries to the continent of America wrought a subtle change in the working of its brain cells. We see this in scores of things, but I want to call attention to it in connection with the subject in hand. In the older country, for instance, for many years we had been accustomed to stage coaches and the stage coach driver, but no one dreamed of regarding the driver as a hero of romance, except perhaps the boy at the age when he was undecided as to whether he would be a clown in a circus or go out and fight Indians. But when the stage coach came into use in America we all fell down and worshipped at the feet of the man who held the reins and whip. He might be, and generally was, an ignorant, overbearing creature of the genus "tough," who had neither brains nor training to fit him for anything but the lowest form of manual labor, and he was far too lazy to do that, but we worshipped him just the same. Why? I confess I have failed to learn the cause. The answer that "he took his life in his hand every hour in the day in our service" will not do, for accompanying the driver was a man who acted as conductor and guard. He it was who really looked after the interest of his employer and the public. And it was he who occupied the post of danger, as it was considered the proper thing to shoot him first, and then tell the driver what to do next, which he did, being in no danger whatever while

he did it. But we gave the better man small credit. On the other hand, when the driver, "old Hank" something or other, pulled into the next stopping place and reported the guard killed, the express, mail and passengers all robbed, but *he* perfectly safe in person and property, we cheered him as a hero, the only hero.

This would not be a matter of importance, looking back at it today after the stage coach driver has passed away with the cowboy, the gun man, and other picturesque characters, if it were not for the fact that the idea evolved through some mental twist has been carried into the railway world, and has here, in an otherwise prosaic, hard-working, work-a-day world, been the means of creating the specially privileged class to whom I refer. The railway itself was a new thing, the locomotive engine a thing of mystery, and, naturally, he who controlled it was a hero of romance in the eyes of all the boys and girls of all ages. Then there was the autocrat in blue who actually had the power to let you ride behind the thing of mystery. Don't we all remember what a proud day that was when we were permitted to call either of these exalted ones by their first names, how we envied those who could, before the privilege was ours also? This mental attitude brought forth the "railway story" wherein the hero, "Bill," stuck to his engine, and died with hand on throttle, while his fellow hero in blue saved the beautiful maiden in the first class car.

Now, it is always right to give credit where credit is due, and the locomotive enginemen and conductors have, generally speaking, done their duty, the duty for which they were trained, as well as men in other walks of life. No better and no worse. There have been heroes among them, and there have been the other kind. There have been men of good judgment, and men of poor judgment. But the public gave them with halo of romance, and I am not sure but that it was perfectly natural that they should take advantage of it, as they have, to raise themselves into a privileged class, so far as reward for services rendered is concerned. They were enabled to do this owing to the peculiar position occupied by the railway, and the peculiar nature of their work. The railway once placed in operation cannot stop the running of its trains without throwing the business of the whole country out of joint, and it is generally bound under heavy penalties to keep them running. All these forces conspired to give these men their opportunity to secure greater reward in proportion to value of service rendered than other men received, greater than the economic conditions of the country warrant them in receiving. The result of course is, that other men must receive less than a proper reward to make things balance. The manifest unfairness of this is very plain when we analyze the matter. In all properly regulated lines of human effort the reward for services rendered is governed by two well defined rules, the value of the service to the individual receiving it, and the cost to the individual rendering the service of acquiring the ability to render the service. This is very well illustrated by the reply of the great eye specialist to the man who complained of the price charged for an operation that took fifteen minutes to perform. He said, "It is true that was a small matter, occupying but a few minutes, but it cost me five years of my time and money, and other people about a peck of such eyes as yours for me to acquire the skill to do the job right for you."

We recognize the fundamental principle there, and when we apply it to the case we are considering we see at once how untenable in reason is the position in the railway world of the men who make up the train crews. To begin with, they do not have to possess particular ability, aptitude, or education to fill the positions they do, and the necessary training they receive while drawing a living wage. There is neither time nor money outlay on their part, and the period of training may be much shorter than that required to make an efficient car inspector, machinist, boiler maker, shop foreman, accountant, chief clerk, carpenter, blacksmith, etc.; yet all of these must work all day, every day, to secure, in many cases, less than half the amount claimed by the trainman for working, on an average, one-half of each day; and even that time is put in by the trainmen on labor less trying than that in the cases cited. It is not a question of the actual amount received, but the fact that they receive far too much in proportion to the value of services rendered compared with other people, or their fellow employees. I have mentioned the men with trades, the skilled men, who receive less than half what the trainmen receive. But there are many others, men of skill and experience, who are *never* off duty, day or night; men who must work hard and must plan largely for the future in the interest of their employer; the roadmaster, the trainmaster, the division engineer, the master of bridges and buildings, the general foreman, the general car foreman, the storekeepers, the freight agents, and many others; men whom it has taken years to train, who are responsible for the work they have done six months ago, a year ago, as they are responsible for what they do today. All of these must work for less reward than the service rendered by them is worth that the privileged class may receive more than its service is worth.

Up to the present time the railway company and the mass of the railway employees have been the sufferers through this condition, but the time has now come when the general public must shoulder the burden, as, to meet the ever increasing demands of this special privilege class, railway earnings must be increased. In other words, rates, both passenger and freight, must be raised. There is no other thing in the world today that touches the pocket of everyone so directly and so quickly as an increase in railway rates. We may not all travel, but we must eat, and have things to wear. Those of us who travel must pay twice.

It has been much the fashion for many to back up or give a moral support to these men in their demands. They have been, in the eye of the ignorant public, the railway men, the romantic side of the undertaking. Well, the day has come when we must each pay the price of admission to see our hero. And while viewing him we can have the satisfaction of knowing that we have, through our own foolishness, made it possible for him to make us pay.

OBSERVER.

A line is proposed from Somerset, East South Africa, to connect with the Western main line near Hutchinson. It was stated that the line would be about 160 miles long, and that it would greatly develop agricultural resources. A considerable amount of irrigation work is now under way in this district.

The privately owned light steam railways in different parts of Kiushu Island, Japan, now in operation report good earnings, and they are rapidly developing the sections through which they run. The Shimabara Railway in Nagasaki prefecture and the Dai Nippon and the Kikuchi railways in Kumamoto prefecture are extending their lines, while one new line is under construction and charters have been granted to six new companies to build light steam railways in Kumamoto, which embraces the principal agricultural district of the island. In Oita prefecture four companies have received charters to build light railways and in Kagoshima prefecture one charter has been granted. Work has not yet begun on these lines, however.

The concession of the Vladikavkaz railway, Russia, which expired in 1911, has been renewed for 15 years. This line traverses the north Caucasus from Baku to Novorossisk and Rostoff-on-Don, and it is the outlet for this rich agricultural district. With the renewal of the concession the railway company is to effect improvements. At Novorossisk the docking will be extended, and a new elevator is being built which will hold, it is estimated, 60,000 tons of grain. The railway already has at Novorossisk what is claimed to be one of the largest elevators in the world. The improvements at that port will afford housing for an enormous quantity of grain and alleviate such inconvenience as attended the large crops of 1910, when great quantities of grain were stored in the open and covered with tarpaulins.

A NEW TYPE OF STEEL PASSENGER CAR.

Details of the Suburban Cars of the New York, Westchester & Boston, Embodying a Simplified Steel Body-Frame.

The introduction of steel into the structure of railway cars has gradually developed methods of design departing more and more from those established by long practice with wood as the principal material of construction. The general plan pursued in the design of wooden passenger cars has been to give the underframe sufficient strength to carry the superstructure and its load, the superstructure serving simply to shelter the passengers from the elements and provide for their comfort, but not contributing in any way to the strength or the shock-resisting capacity of the car. With the increased use of steel there has been a growing tendency to develop more strength in the side frame and to lighten the underframe. The most recent advance in this direction is embodied in the all-steel cars designed by the firm of L. B. Stillwell for the New York, Westchester & Boston. The Westchester cars are full steam road size, the chief general data being as follows:

Length over coupler faces	72 ft.
Length over end sills	61 ft. 4½ in.
Length, center to center of trucks	47 ft. 7½ in.
Seating capacity without center doors	86
Seating capacity with center doors	78
Weight of car body and trucks	81,500 lbs.
Weight of electric equipment, including two 175 h. p., a. c. motors	37,500 lbs.

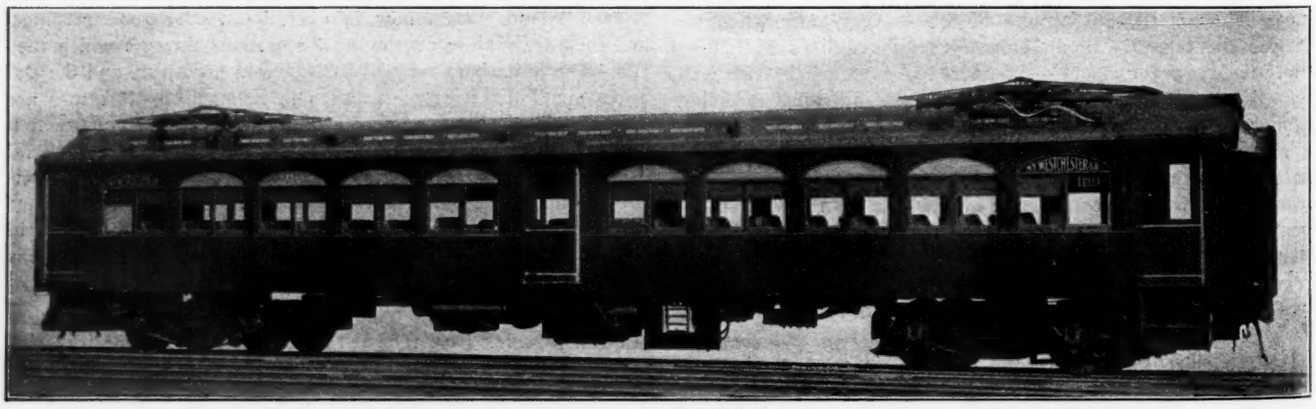
The initial equipment of the road will consist of 28 passenger coaches and two combination passenger and baggage cars. They have full vestibuled platforms and are provided with side doors at the middle and the ends. The station platforms are on a level with the car floor, but to provide for emergencies and also to permit the cars to be used on the Harlem River branch of the New York, New Haven & Hartford, which has low station platforms, there is a trap door and a flight of three steps at each end platform. The Westchester car is designed for service in trains of eight or more cars, and is capable of withstanding shocks incident to main line service, either steam or electric.

General Design.—The full height of the side of the car has been utilized to develop strength. The side plate and letter board form a compression member, and the side sill the tension member of a girder. These are connected by the usual window posts or piers, and all are framed together to form a truss that fully develops the strength of each member. This method of framing was used in the construction of the cars designed by the same firm for the Hudson & Manhattan, but the structure itself was quite different, in that it was built up of standard rolled shapes. Recent progress in the art of working metals has made it possible to substitute pressed steel forms of great strength and light weight for the rolled steel shapes and by taking advantage of these improvements in the manufacturing methods, an entirely new and greatly simplified method of car construction has been evolved.

The distinctive feature of this new system is the pressed unit-

Vestibule of All-Steel Suburban Car.

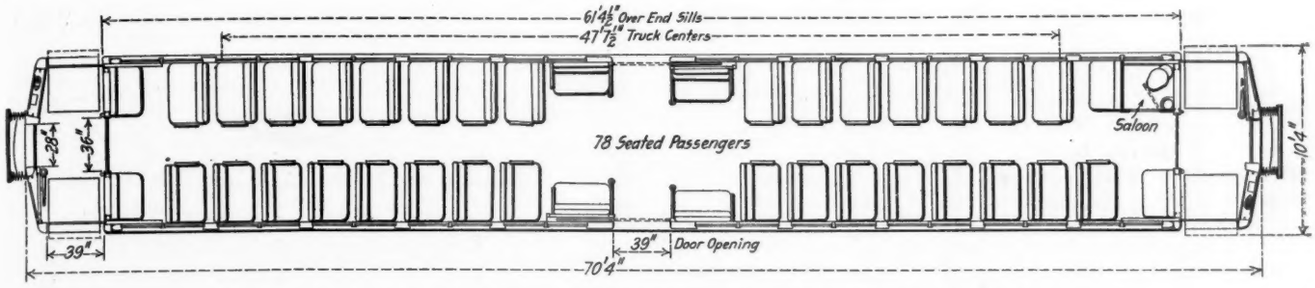
panel side-truss. Each unit includes a main post, diagonal braces, letter board and side plate channel, all pressed from one sheet of steel, thus eliminating all riveted joints between these various elements. Probably the most striking feature of the Westchester car design is the practically uniform distribution of the shock-resisting members throughout the structure, which insures a maximum degree of protection to the passenger in case of collision or derailment.



All-Steel Suburban Electric Car for the New York, Westchester & Boston.

Underframe.—The center sill is supported at each main post by cross bearers spaced about 5 ft. 6 in. on centers, thus making it

possible to use a comparatively light and shallow center sill of uniform section, and yet obtain sufficient strength to withstand the shocks and strains of buffing and draft, as well as those of collision. The center sill is made up of two 8 in. 16¼ lb., channels, 14 in. on centers, and is provided with a ⅜ in. top cover plate and a 1/16 in. bottom cover plate, the enclosed space be-



Plan of Center Side Door Steel Passenger Car; New York, Westchester & Boston.

ing utilized to convey air for ventilating the motors. The cross bearers maintain the sill in rigid alinement, so that all buffing stresses are absorbed by longitudinal compression rather than by flexure.

The uniform depth of sill not only reduces the weight, but leaves an unobstructed area beneath the car floor for the installation of air brake equipment and electrical control apparatus, when used. Wherever there is any possibility of equipping a road for electric motive power within the lifetime of the car, this arrangement of underframe and vestibule is important, since it not only provides space for application of the electrical apparatus, but also facilitates the maintenance thereof.

Side Frame.—The side frame of the Westchester car consists of 12 pressed unit panels securely riveted together and forming one continuous truss. The panels are pressed and flanged from ¼ in. sheet steel. At the top they are riveted together with splice plates and butt welded, and at the bottom they are riveted to the side sill. The side sill is a 7 in., 9¾ lb., channel. Channel-shaped main posts of pressed steel are riveted to the side frame members. They are bent over to form part of the roof and are

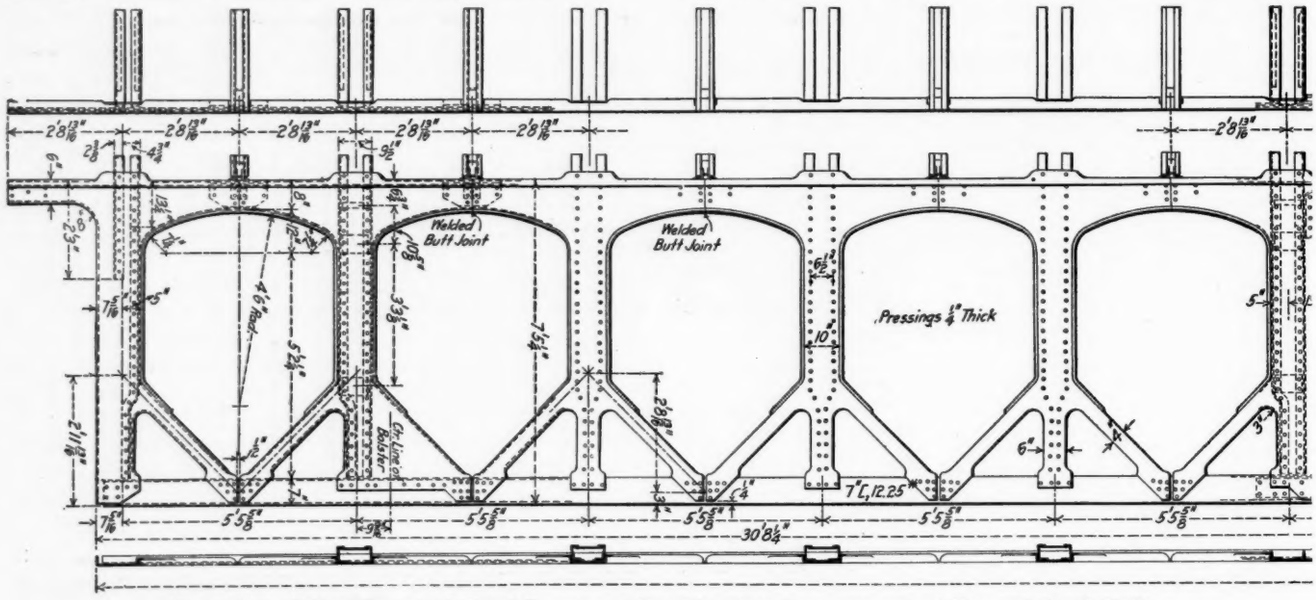
Framing of All-Steel Suburban Car, Showing the Extent to Which Pressed Steel Shapes Are Used.

riveted to the bottom of the deck sill. This method of framing to the deck sill has the effect of an enormous flange and offers great resistance to lateral flexure.

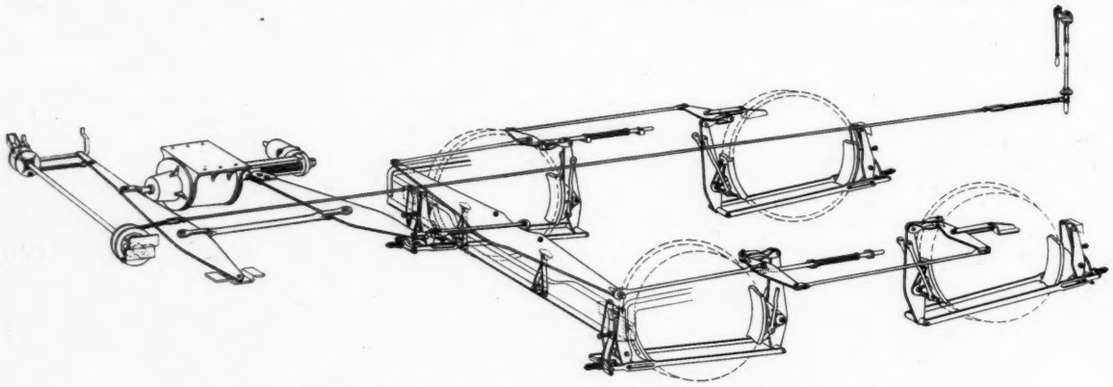
This type of framing construction utilizes the properties of the steel to full advantage, providing a side girder more than twice as deep as that on the type of car where the load is carried by side girders below the windows. It also weighs much less.

Roof Frame.—Considerable strength has been developed in the roof. The framework is made up of pressed steel carlines, bent in arch form, and riveted to the deck sills, which in turn are riveted to the ends of the window posts as above described.

Sheathing.—Below the belt-rail the Westchester car is sheathed with 1/16 in. steel plates riveted to the belt-rail and side sill. The posts above the belt-rails are not sheathed. Joints in the



Elevation of Side Frame of Steel Passenger Car Showing Arrangement of Pressed Steel Units.



Clasp Brake for Motor Truck as Used on Westchester Cars.

Motor Truck for Westchester All-Steel Suburban Cars.

side sheets are covered with ⅛ in. battens, and all joints are made absolutely water tight. The roof sheathing consists of 1/16 in. steel plates extending in one piece from side plate to side plate. The sheets are lapped across the carlines, securely riveted and then welded by the oxy-acetylene process to form a water tight joint. The hoods are pressed from two sheets and riveted together in the middle.

Heat Insulation and Lining.—One of the disadvantages of steel for car construction is its high heat conductivity which often makes it disagreeable for passengers in extremely cold weather, the car radiating heat so rapidly as to create the impression of a draft of cold air. To avoid this the entire roof and space below the windows of the Westchester cars is lined with a ¾ in. layer of special insulating material faced and bound with fireproof burlap and held securely in place by short steel pins welded to the sheathing and uniformly distributed over the surface. The entire interior of the car above the floor is lined with fire-resisting Agasote, secured in place by drawn steel molding. The underside of the floor is lined with ¼ in. Agasote insulation glued to No. 24 galvanized sheet steel, which is riveted to the flooring.

Sanitation.—The interior finish is especially designed to promote cleanliness. Sharp edges, projecting corners and crevices which form lodging places for dust and dirt are systematically eliminated. The floor is of Karbolith, and all joints with vertical surfaces are filleted to a 1 in. radius to facilitate cleaning. The seats are of the Walk-over type. They have all-steel frames and are covered with Pantasote. The actual seating capacity of the car is 86, but the side doors displace four seats, thus reducing the seating capacity to 78 passengers.

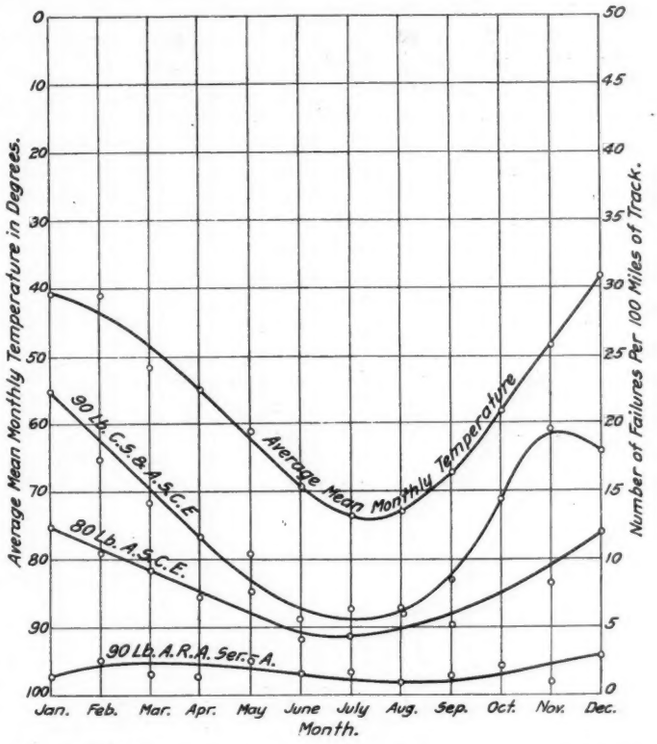
Draft Gear.—The draft gears and couplers conform to the standards of heavy steam railway passenger car practice. Diaphragm vestibules are used in connection with platform buffers. The coupler is attached by a pivot pin to a friction draft gear consisting of 28 plates having a capacity of 175,000 lbs., the draft gear being carried in a pressed steel housing riveted to the center sills just back of the end sills. The buffer plate is on a level with the platform floor and is backed up by a Forsyth buffing device mounted within the center sill. This gear comprises two large helical springs and friction spring leaves with a capacity of 250,000 lbs., so that the total draft gear and buffing device capacity is 425,000 lbs. when completely closed.

Brake Rigging.—The weight of the rotating parts of the motor, the high speed of operation and the frequent station stops, constitute a service that would require about 34,000 lbs. pressure with one ordinary brake shoe per wheel. This value is in excess of that which is considered good practice, and it was necessary to use two shoes per wheel and to develop a special brake rigging to meet these conditions. The foundation brake gear and brake rigging are shown in one of the illustrations. There is an independent foundation brake gear and brake cylinder for each truck. One control valve regulates the air pressure in the two cylinders. This arrangement of foundation brake gear minimizes the weight, leaves the underframe clear for electrical control apparatus, facilitates prompt release of the brakes without heavy release springs and provides for an effective hand brake. It also provides for easy and rapid adjustment for the wear of the brake shoes.

Trucks.—The trucks were also designed by the firm of L. B. Stillwell to meet the special requirements of high-speed, heavy suburban railway service. They are simple in design and in actual service have proved to be extremely easy riding. The side frames are of the arch bar type with cast steel pedestals enclosing triple-coil journal box springs. The top arch bar is a Z-bar, and the inverted arch bar is a heavy angle securely riveted to the back of the top flange of the arch bar over the journal boxes. The transoms are pressed steel channels and are attached to the side frames by large cast steel gussets. The bolster is of the box type, made of pressed steel, is 14 in. wide and rests on quadruple elliptic springs.

RELATION OF TEMPERATURE AND SECTION TO RAIL FAILURES.

In plotting up the rail failures on the Harriman Lines for the past three years with respect to temperature, the results gained with the 90-lb. A. R. A. section, series A, were found to be very interesting. A glance at the accompanying curves will show how differently this rail has behaved from the 90 lb. and 80 lb. A. S. C. E. sections. It will be seen that the breakages of rails of those designs and weights correspond very closely to the temperature changes, being low in June and July and


Average Mean Monthly Temperature in Degrees.
Number of Failures Per 100 Miles of Track.
Average Mean Monthly Temperature
90 Lb. C.S. & A.S.C.E.
80 Lb. A.S.C.E.
90 Lb. A.R.A. Ser. A.
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Dec.
Month.

Rail Failures Per Hundred Miles of Track; Harriman Lines.

very high in December, January and February. On the other hand, the A. R. A. section shows very few more breakages in January and February than in the warmer months. As this data covers a period of three years, and is compiled from failures occurring on all of the Harriman lines, it may be assumed that the showing is quite reliable. The data given is for rail failures per 100 miles of track and the average mean temperatures on all the associated Harriman Lines during the calendar years 1909, 1910 and 1911.

Smyrna, Asia, Minor, has communication with the interior of the country by two railway lines: The Smyrna-Cassaba railway, running eastward, for 324 miles, with branches of about 60 miles; and the Smyrna-Aidin railway, running 234 miles due east in the southern section of Asia Minor, with branches amounting to 87 miles. Both these railways have started a further extension of their respective lines and work is in progress.

The report of the operation of the Transcaucasian railway, Russia, which connects Batum with Baku on the Caspian sea, 558 miles, shows for first eight months of 1911 the following figures: Number of trains run, 112,500; number of passengers carried, 5,639,325; by express, 39,700 tons; by freight, 2,217,383 tons; 795,379 tons of railway material belonging to the line were carried. The revenue derived from the passengers and freight amounted to $9,983,042, an increase of $754,900 over the corresponding period for 1910. The expenditure of the railway during the same period amounted to $3,321,595, an increase of $730,630 over the corresponding period of 1910.

RAILWAY TELEGRAPH SUPERINTENDENTS.

Annual Meeting in New York; Experiences with Telephones and Selectors; Management of Offices and Maintenance of Lines.

The thirty-first annual convention of the Association of Railway Telegraph Superintendents was held at the Waldorf-Astoria hotel, New York, June 4, 5 and 6, President G. A. Cellar, of Pittsburgh, Pa., in the chair. There was a large attendance of members, and also many ladies, wives and daughters of members.

The reports of the secretary, treasurer and executive committee showed the association to be in a sound financial condition, and increasing in membership. There are 105 active members and 64 associate.

E. C. Keenan, chairman, read the report of the committee on wire crossings. The committee had held several meetings and drafted part of the specifications, but was unable to get them completed for submission at this meeting. The proposed specifications refer to the construction and maintenance of aerial electric wires crossing railway rights of way, etc.

The report of the committee on high tension wire crossing was read, and on the recommendation of President Cellar section 18 was amended, with respect to the insulation of guy wires.

E. P. Griffith, chairman of the committee on the delivery of telegrams on trains, reported progress and the committee was continued. Mr. Griffith also made the final report of the Turner Monument Fund Committee. He briefly reviewed the history of the movement and referred to the dedication on May 2.

The committee on miscellaneous matters, E. A. Chenery, chairman, recommended clearing the ground of grass within a radius of 5 ft. or more around telegraph poles. L. M. Jones, chairman of the committee on Standardization of Rules governing the handling of train orders by telephone, reported progress, and the committee was continued.

In the afternoon the paper of R. E. Chetwood, engineer of construction of the Western Union Telegraph Company, on "Construction Materials and Methods," was read in abstract by the author, and brought out a long and interesting discussion, which was participated in by Messrs. W. J. Camp, M. H. Clapp, J. C. Hubbard, Charles Selden, G. A. Dornberg, C. S. Rhoads, M. C. Allen and others. The Canadian Pacific uses nothing but tile conduit for underground service. Double cross-arms are required by the Canadian Railway Commisison at crossings.

A paper on the handling of supplies by W. G. Higgins (Western Union) was read in abstract by the author and discussed by E. A. Chenery, W. F. Williams and others.

William Maver, Jr., read an interesting paper on polarized sounders, and showed an instrument in operation.

SECOND DAY.

On Wednesday the meeting was addressed by Belvidere Brooks, general manager of the Western Union, and Angus S. Hibbard, of the American Telephone and Telegraph Company. Mr. Hibbard said that there were now over 300 joint telegraph and telephone offices in small towns, and very satisfactory service was being rendered. By this arrangement 24-hour telegraph service is given where it would not pay to keep telegraph offices open continuously.

A paper on the telegraph and telephone facilities of the St. Louis terminal was read by F. E. Bentley, superintendent of telegraph of the Terminal Railroad Association. Extracts from this paper will be found below.

A paper on The Use of the Main Line Relay in Telephone Selector Operation, was read by W. W. Ryder, general superintendent of telegraph of the New York Central Lines, Chicago. An abridgment of this paper will be found below. A lengthy discussion was participated in by W. E. Harkness, V. T. Kissinger, Wm. Bennett, G. K. Heyer, W. L. Cook, W. J. Camp and L. M. Jones. These gentlemen related their experiences with main line relays in connection with the operation of selectors, and pointed out the advantages and disadvantages of the method.

W. N. Fashbaugh, traffic engineer of the Western Union, read a paper on Telegraph Traffic. An abridgment of this paper will be found below.

On Thursday a paper on "What the Telephone Has Done for the Santa Fe," was read by L. M. Jones of that road. An abridgment of this paper will be found below. It was discussed by Messrs. Selden, Wilbur, Camp, Ryder and Van Akin. G. M. Yorke (Western Union) read a paper on the maintenance of telegraph lines, and it was discussed by Messrs. Chenery, Beck, Kissinger, Clapp, Dornberg, Allen, Camp, Keenan and Ross. Extracts from Mr. Yorke's paper will be found below.

J. F. Caskey (Lehigh Valley) presented a paper on the use of the portable telephone in railway service. The discussion of Mr. Caskey's paper was participated in by J. B. Sheldon, W. W. Ryder, W. J. Camp, S. L. Van Akin, Jr., W. C. Walstrum, J. J. Ross, C. A. Parker, Charles Selden and E. A. Chenery. The speakers gave interesting facts regarding the use of portable telephones on their respective lines, and much information of value was brought out. Following the discussion on Mr. Caskey's paper, a paper on telegraph line maintenanec was read by W. S. Melton of the Queen and Crescent Route, and was discussed by Messrs. Ross and Howe.

A communication was read from James Kent (Canadian Pacific), giving an account of an interesting experience in the use of dry batteries at Sudbury, Ont., during a flood which submerged the storage battery. Dry batteries were pressed into service to supply energy for the operation of several circuits, including duplexes and quadruplexes, with very satisfactory results.

A meeting of the executive committee was then held, after which the following named officers were elected: President, J. B. Sheldon (Union Pacific), Omaha, Nebr.; vice-president, William Bennett (C. & N. W.); second vice-president, A. B. Taylor (N. Y. C. & H. R.); secretary and treasurer, P. W. Drew (M. St. P. & S. S. M.), Chicago. St. Louis was selected as the place of the next annual convention, and May 20, 1913, was fixed as the date.

USE OF MAIN LINE RELAYS WITH TELEPHONE SELECTORS.

By W. W. Ryder (N. Y. C. Lines).

In the early development of the selector in telephone train despatching work, a main line relay was used to receive the signals, the selector mechanism being operated off the local points of the relay. Later several types of selectors were brought out in which the signaling current directly actuated the step-up mechanism. While this arrangement reduced the number of parts in the selector and its cost as well, it also reduced its effectiveness. The moving parts of the directly operated selector have a greater inertia than the light armature of the relay, and a much greater current is required to satisfactorily operate it; then, too, the margin of operation was considerably lessened, varying with the different types.

Comparing two circuits, one equipped with selectors of the relay type with local step-up operation, and the other with those of the directly operated type, the new selectors were found not nearly as satisfactory as the older type, this being particularly noticeable when there was a considerable change in the volume of signaling current by reason of offices cutting out at night and in again in the morning, the operating range of the selectors not being wide enough to work successfully on the varying current.

This trouble was so serious it became necessary to issue instructions that offices must not cut out when closing for the night. As this trouble had not been experienced with the older selectors, it was evident the cure lay in the introduction of a sensitive relay in the circuit. Accordingly arrangements were made with the manufacturers of two different types of selectors to furnish some of their apparatus equipped with relays, and the operation in every instance has been greatly improved; in fact, the change has been so marked it has been decided on all New York Central lines west of Buffalo to replace all those not so equipped with main line relay selectors. This involves some additional expense, but this expense is clearly justified—by reason of greatly improved service, and greater economy of operation. The direct operating selectors require at least six milliamperes per selector, effectively distributed. The local battery selector is operated through the medium of a very sensitive high wound (4,700 to 7,000 ohms) main line relay, with very light armature, has only a light retractile spring tension, and requires only four milliamperes. It will operate without readjustment on from one-half milliampere to 18 milliamperes, thus insuring satisfactory operation under practically all conditions.

This lessened current requirement means cutting the voltage of the signal battery in half at least, with all the naturally attendant benefits of lessened leakage, etc., while the widened margin of operations means less failures, thus avoiding many trips of the inspectors for the purpose of adjusting selectors reported as failing to operate. It also means longer circuits, and more stations can be successfully operated than is otherwise possible.

It is true with the relay selector the local battery is required to do double duty, that is, to operate the selector mechanism as well as to furnish current for operating the vibrating bell. This increases battery consumption in the local circuit to some extent, figures showing the average life now to be five instead of seven months. But, this no where near offsets the saving through reduction in main signaling battery.

Reducing the signal battery has made it possible to do away with retardation coils and expensive high voltage condensers at the despatcher's terminal. It also lessens the original installation cost, has practically eliminated trouble of breaking down condensers, and has minimized possible injury to despatchers.

One of our despatcher's circuits 183 miles long has 26 stations equipped with a direct-operated type of selector. This circuit requires 398 volts, and a current of 310 milliamperes. A paralleling circuit between the same points used for message service has 43 stations equipped with relay selectors. This circuit requires 150 volts and a current of 172 milliamperes. Thus the latter circuit with 17 more stations is actually worked with 248 volts and 138 milliamperes less than is required to operate the despatcher's line. Not only this but the general service has been infinitely better, and this through a period of about one year.

Another pair of circuits 143 miles long show similar results. The despatcher's line has 30 offices equipped with old selectors, and requires 350 volts and 320 milliamperes of current. The message circuit with 32 offices equipped with relay selectors is worked with 135 volts and 135 milliamperes, a reduction of 215 volts and 185 milliamperes.

THE TELEPHONE ON THE SANTA FE.

By L. M. Jones, Superintendent of Telegraph.

The only objection which has been brought to my notice is the one due to the use of the headband receiver, which it is necessary for the despatcher to wear constantly for eight hours daily. The pressure of the band and its weight, with that of the receiver, in time becomes annoying. The hard rubber shell of the receiver cap makes a heavy pressure upon parts of the ear; the soft rubber cushion, if used, relieves this trouble to a considerable extent, but in warm weather causes considerable perspiration and consequent uncomfortable feeling. Here, it seems to me, is the largest field for improvement. We should have a transmitter sufficiently powerful to permit placing a receiver in such a position that the despatcher may hear by placing his ear near it, and in this way avoid the necessity for the use of the headband receiver. We have all noticed operators along the line wearing the receiver headband while engaged on other work, which is done for the purpose of keeping in touch with train movements. In this, we must admit an advantage in favor of the telegraph.

The advantages of the telephone are great. The first, and one that is noticeable as soon as a circuit is placed in service, is the time saved in calling offices. A weather report may be secured from 20 offices in less than five minutes. By telegraph it would probably take 20 minutes and be closed with possibly one-fourth of the offices failing to respond. It is not unusual for the despatcher to be called upon by a relay or Western Union office to ring an office for which they have a rush message and are unable to raise the office promptly by telegraph, and this he can do with practically no effort.

In transmitting orders, the speed is regulated by the despatcher who writes the order in his book at the time it is sent. While some time is saved in transmission, probably 25 per cent., by far the greatest saving is made in repeating. An order may be repeated in approximately one-fourth the time required for telegraph repetition. The consensus of opinion is that the telephone increases the efficiency of the train despatcher at least 25 per cent.; some insist that 50 per cent. is nearer correct. In some cases it may be possible to lengthen districts and possibly get along with fewer despatchers.

Under the telegraph system, the despatcher copies the order in his book as it is first repeated, sending the order out without a written copy. By the telephone system, the order is written in his book as it is transmitted, so that the repetition is checked against his book copy, rather than his memory; this is a factor of safety.

In cases of washouts or broken rails the despatcher looks at his clock and notes a train may be very near the last station. Instead of calling desperately and hoping he may have the good fortune to find the operator on hand, it is only necessary to make one turn of the wrist and a bell is ringing which will bring the operator if within a block of the office. This conserves the strength of the despatcher and relieves him of an immense nervous strain; in fact, the benefits and safeguards are so numerous that this one is only mentioned as an example. Without a doubt many wrecks in the past could have been prevented. . . .

When derailments occur, the conductor comes to the nearest telephone and talks with the despatcher and tells him of the exact conditions. As an example, a train with 50 cars cut off an engine and started in on a spur to pick up two cars. A rail was broken, derailing a large engine. Conductor reported to the despatcher as follows: "In heading in on spur 'B' rail broke; engine is on ground; our train is on main line. Send an engine to pull us on; she must come from the east and first pull the 50 cars back to 'C' and place on siding; this will clear the main line. Have section men working now and soon as we are rerailed everything will be clear"—all of which took about a minute. That conductor probably would have spent a long time preparing a suitable written message.

By talking with agents, the despatcher saves many messages daily which it would otherwise be necessary to send regarding cars required for loading, etc.; in fact a conservative estimate would place the saving at an amount at least equal to one operator in each division office.

We have a fast mail train which arrives at destination on the dot 29 days out of 30, but to secure this result it must leave the terminal on time, regardless of its connection from the west. However, if the connection from the west is over an hour late, it misses the regular train and is run through, making an extra train for over 500 miles. This is what happened recently: Train from the west was 50 minutes late; general superintendent's office asked trick despatcher about this train, to which he replied: "Fifty minutes late, 12 cars, no extra stops, two cars to pick up at 'K,' big crowd to get on at 'W'; will probably make schedule."

Instructions were then given as follows: "Maintain schedule if possible; if unable to do this will have to run two sections east. Find out from conductor at first stop if people in the two special cars are equipped to prepare their own food; if not will be necessary to carry diner east." Despatcher secured the information, rung general superintendent's bell and advised him a little later, everything was lined up and train would make the connections, all of which consumed very little time.

One of our greatest benefits, so far as an actual saving of money is concerned, is by the use of portable sets. From those furnished work trains, extra gangs distributing, laying and picking up rail, etc., between stations, as compared with the old method, it is estimated that the same number of men in a gang will be able to do one-third more work.

The telephone circuit is not affected by fogs, while the telegraph is often rendered inoperative where lines parallel the coast. With the telephone, no adjustments due to weather conditions are required.

From everywhere you hear harmony emphasized. Instead of the contention for circuit and discord between the despatchers and operators, the despatcher is brought in much closer touch with the operators and agents. All petty quarrels, such as frequently occur by telegraph, are entirely eliminated for the reason that they are usually due to a misunderstanding. It is so easy to explain such things fully by telephone that they are in this way obviated; in fact, they are one happy family.

At first, despatchers, except those having trouble due to operators' paralysis, are almost to a man opposed to the use of the telephone. After using it a short time, however, they consider it a hardship to have to go back to the telegraph even for an hour or so in an emergency. In giving an opinion, one despatcher says: "With the inauguration of the telephone the company made another rapid stride toward perfecting its service. The benefits from a safety standpoint are unparalleled in the history of train despatching." About a year ago our despatchers were given an increase in salary. In acknowledging receipt, one said he really felt ashamed to take the money for the reason that never in his 20 years' experience had he found his work so easy. This he attributed to telephone train despatching and the use of oil burning engines. One division operator suggests that the telephone not only conserves the time and temper of the despatcher, but that it may be an important factor in determining the final destiny of the ordinary despatcher in the Great Hereafter!

ST. LOUIS TERMINAL TELEGRAPHS AND TELEPHONES.

By F. E. Bentley.

At St. Louis union station the main telegraph office on the fifth floor is equipped with 76 telegraph wires, all but six looped from Western Union main office; also four telephone circuits. Twenty-three telegraph wires and three telephone circuits are exclusively despatchers' line; the remaining 53 telegraph wires and one telephone line used for message work are cut onto eight sextette-instrument tables.

All of the 76 telegraph wires are cut from the regular switchboard to another one improvised of Dean telephone jacks—eight strips of ten jacks each. A monitor operator at the jack-switchboard, using plug and cord on telegraph instrument, plugs in on each telegraph wire at intervals of ten to 20 minutes, answers calls, has an operator in the room get the message if one is available, otherwise takes it himself; gets off any miscellaneous rush messages, and helps out the chief operator, besides keeping a record of the condition in which he finds each wire—quiet, busy or open. If quiet, he announces his presence by saying I I UD, thus giving any office on that wire a chance to get him.

Telegraph and telephone message circuits on the eight tables are divided into districts, each operator working six or eight, and these operators also record the condition of the wires at less regular intervals, and likewise announce their presence at quiet wires.

As each operator is credited with the number of messages he handles, a daily average service account being kept and filed for their inspection, they are careful to record every message sent and received. This spurs the operators to handle all the messages they can, and with the wire-condition record and miscellaneous notations on the call sheets, makes a complete supervisory record that is seldom assailed successfully.

When a line office has an equipment order to send, he says "coach" and our operator makes the required number of copies—eight or ten, on typewriter at one writing and direct from the wire, thus saving delay and work. "Coach" manifolds of tissue blanks are kept set up and handy for operators' use. Stock and time freight reports are handled in a similar way.

This office is different from the ordinary railway relay office in that a scattering few messages are handled on numerous wires, instead of a great number of messages on a few wires. The telegraph arrangement has remained practically unchanged since first installed when the union station was opened in 1894, excepting that train wires were taken off the table in 1904, operators devoting all their time to working and watching message wires. The telephone circuits were added during the past two years.

At the train order office in the midway passenger conductors of 23 roads register, call for mail, messages and orders, and leave reports, which are usually sent to the main office through pneumatic tube for wire transmission. One operator handles train orders for those roads which use that office, and another operator gets hourly bulletins of incoming trains, making ten copies at one writing, distributes them to the various departments, and see that the bulletin board is posted and changed.

An inbound train sheet record is made, so that any inaccurate figure given by a road despatcher may be corrected after the train strikes Terminal rails and before it reaches union station.

A daily average of about 2,500 messages, orders and reports are handled at these two offices, and nearly 400 telegrams between local offices which have no direct telegraph connection.

Should not telegraph and telephone offices, both commercial and railway, at large passenger terminals be combined and centrally located on or near the track level?

Two private branch exchanges at union station and 32 private lines between various points, with over 400 telephones, are used in terminal telephone service, handling a daily average of about 12,000 connections.

One private branch exchange is connected by junction circuits with eight of the other 15 railway private branch exchanges in St. Louis, as well as by trunk lines with the St. Louis main exchange. Telephone facilities over the entire terminal property have been a lively and growing proposition for the past 15 years. As the different departments feel the need of additional telephones, instruments are placed here and there, subject of course to the eagle eye of the management as to expense. . . . In very noisy places—shops, engine houses, etc., where the 6 in. gong could not be heard—we use air whistles connected by a trigger device to the telephone bell box. Telautographs—electrical writing machines—are used to very good advantage, both at union station and Washington avenue new station, where train announcements must be displayed for some time and a permanent record is desired. One transmitter at the principal interlocking tower, union station, sends simultaneously to six receiving machines itemized reports of trains arriving, trains departing, cars set into the station, etc. Another transmitter in the telegraph office nearest Washington avenue station writes on two receivers in the station all reports of how inbound trains will arrive and the time that outbound trains pass the first towers on each route, the Eads and the Merchants.

MAINTENANCE OF TELEGRAPH LINES.

By G. M. Yorke (W. U.)

Results that ought to follow from good original construction may gradually be vitiated by inadequate attention to the inevitable

small recurring sources of trouble, such as leaning poles, loose ties, and loose or broken insulators; by alteration in construction, such as the insertion of cable; by unheeded changes in surrounding conditions, such as the construction, dangerously near, of high tension lines, the erection of buildings, and the washing out of embankments, and by lack of systematic replacements of decayed, rusted or worn-out parts. A principal penalty for not paying enough attention to the prompt correction of small defects is an unnecessarily large number of what are very significantly known as "troubles." If we can establish a system which makes an increase or decrease in the number of troubles in a given section of line conspicuous, which makes comparison unavoidable between one section and another, and which makes this exhibit not only to the superiors but also to the men who actually do the work and know that they are responsible for the results, and who see every time they clear a trouble the relation between cause and effect, we shall take an important step in the direction of keeping the number of troubles down to a reasonable minimum.

This is the object of the system now being put into effect by the telegraph company for "counting, recording and reporting line troubles," giving data which will fix the responsibility for excessive delays in clearing line troubles and any unnecessary expense connected therewith; also data from which a detail monthly analysis of line and cable troubles and their causes can be made, as well as comparison per mile, etc., will give a basis on which to compare the efficiency of the districts and direct future repair work; will show data from which the troubles per mile and the average time to clear can be determined. Based on the troubles per mile of wire and the average time to clear a trouble, it will be possible to establish a friendly rivalry between districts and between section linemen by issuing a monthly statement showing the rating of the various districts in the division and the rating of the section linemen in a district or in the division.

A high degree of efficiency in clearing troubles on line wires requires close co-operation between the wire chiefs and section linemen. The test rooms are rapidly being equipped with suitable apparatus for testing and locating troubles in line wires. Troubles per mile of wire on No. 9 B. & S. gage copper wires should be the standard by which to judge iron wires; and when the condition of iron wires becomes such that the number of troubles per mile of wire exceeds those on copper wires, the iron wires should be renewed.

As a result of the maintenance of systems described, great improvement may be expected. As a result of such methods one telephone company doing a large toll line business, while doubling its wire mileage in eight years, and working all the time under practically the same construction specifications, made a steady reduction in the total number of line troubles. At the end of the period the troubles per mile of wire were less than half what they were at the beginning.

TELEGRAPH TRAFFIC.

By W. N. Fashbaugh (W. U.)

We are trying to insure accuracy, speed and economy. There is no doubt that the principal cause of errors is the lack of experience or inattention on the part of the operators. In our larger offices throughout the country, we have detailed a supervisor, whose duty it is to cut in on the various circuits for short intervals, noting the manner in which the operators work the wires. At repeater stations, the repeater attendants call to the attention of the terminal offices any apparent imperfection in the work of the operators engaged on the circuits.

The traffic supervisors in our larger offices are required to exercise great care in assignments; operators of mediocre ability will not be assigned to the working of circuits beyond their capabilities. Inspections are regularly made of a proportion of the received messages. All the operators knowing that their work is liable to be under observation and subject to criticism at any time exercise greater care, and the result has been a marked improvement. A number of years ago, delays ranging from 30 minutes to an hour in the handling of messages at our larger offices were not uncommon, but there have been numerous recent instances where we have sent messages from different points in the south and southwest destined to London and Liverpool, to which the answers have been received in three minutes.

We are striving for a regularity of time, so that from experience, the patron can be reasonably well assured that within a certain time a telegram will reach the addressee. In the delivery of messages in the past, large numbers of messages were sent out at one time by a single messenger. We are now sending out not more than three messages at a time during the business hours of the day. Upon return to the office the messenger delivery sheets are inspected to see whether the deliveries have been accomplished within the proper time and further to see whether the boy has returned promptly to the office. We are making progress in handling messages to and from patrons by telephone. The number of messages handled in this manner has been steadily growing for the past year until, at our principal offices the aggregate has reached a monthly total of over one million; there is no doubt that this will be greatly increased.

A record, called a circuit load report, is prepared monthly by all of the principal offices and shows the total number of messages of the different classes which may be filed each half hour for each circuit. From this record we are able to estimate the circuit requirements. A speed of service report has also been instituted in the principal offices covering the movement of the traffic on all of the circuits. This report shows by minute intervals up to 15 minutes, and by five minute intervals up to one hour, the percentage of the traffic handled on each of the circuits. Instances can be cited where two years ago but 5 per cent. of the traffic was being handled within five minutes and 42 per cent. within ten minutes, which have now been raised to 50 per cent. and 60 per cent. within five and 90 per cent. and 95 per cent. within ten minutes.

Definite time intervals have been set for the various steps. For example, the time allowance on branch office circuits was placed at five minutes; on trunk circuits, ten minutes; on way circuits, 15 minutes. Offices must be prepared to furnish a satisfactory explanation of any delays in excess of the standard time. Other time intervals were established.

Economy is subordinate to accuracy and speed, but it is necessary that we consider it; chief operators can waste considerable sums of money in operators' wages if they are not constantly on the alert to see that the assignment of their operating force is regulated from hour to hour. The circuit load report is of great assistance here. We have also individual records showing the average number of messages handled per operator per hour, which are compiled in some of the larger offices to show the average per hour in certain sections of the office, and in the office as a whole.

In a recent month compared with the previous year, with an increase of 13 per cent. in the volume of traffic handled there was a decrease of 6 per cent. in the average cost per message notwithstanding an improvement in the speed of handling and the further consideration that in the same month of the previous year we were not handling day letters.

We have recently issued instructions to all of the independent Western Union relay offices that if working with another independent office, they should stop at the end of the message and clear any railway office that may have offered them business. In this way it is hoped that the movement of business from the railway offices will be expedited, as the railway operators will not have to watch the wires and wait for an opportunity to send their messages.

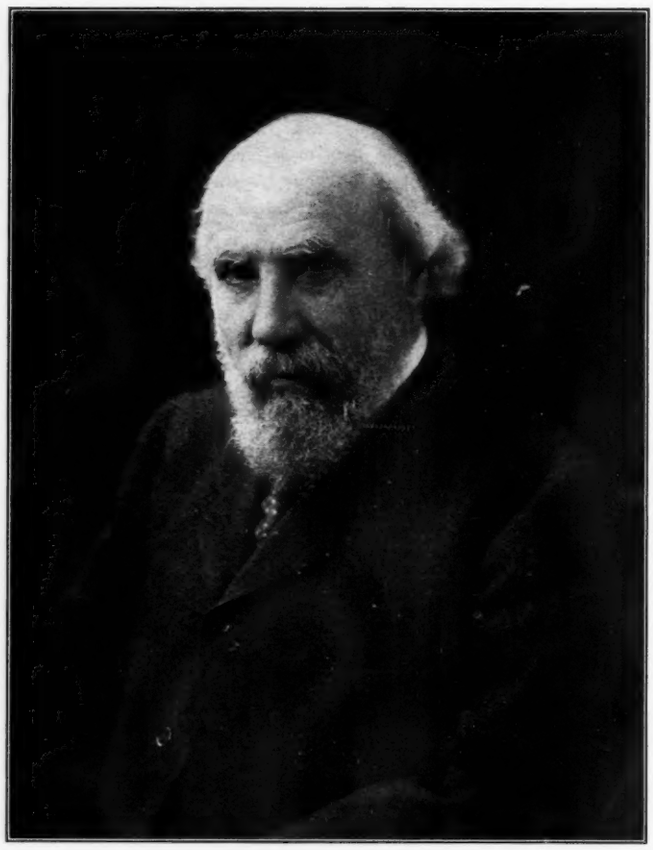
Inspections are so infrequent that we do not keep informed of the character of the service at joint offices, W. U. and railway. We should have some system of regular inspections. I believe it is essential that the inspections be made by an employee of the railway, reporting to the railway superintendent of telegraph.

THE RETIREMENT OF JAMES J. HILL.

James J. Hill on the first of July will retire from the chairmanship of the Great Northern. By this step he gives up the last official position, except that of director, that he held on any American railway. That Mr. Hill, with his large holdings in railways, his keen interest in everything pertaining to transportation, and a mind and body yet very vigorous for a man almost 74 years old, will cease to be a potent factor in railways affairs is not conceivable. Indeed, he has already indicated that he expects to continue to have a voice in them. He is succeeded as chairman of the Great Northern by his son, Louis W. Hill, who has been president of that railway. "Both myself and my son will remain on deck subject to call," said Mr. Hill in an interview a short time ago. "We will both be members of the executive committee." However, the change doubtless means that Mr. Hill has decided to cease to be the active head of the great railway system which he has built up, and thereby give himself more leisure for other things. Unlike most men who in recent years have had large financial interests in railways, but in this respect like his great rival, Mr. Harriman, Mr. Hill has been an active railway executive. And it has been rather as a railway executive than as a railway financier that he has made a deep and lasting impression on railway transportation in this country. He is one of those titans of intellect and energy of which no generation of mankind produces many, and some none at all. He has displayed something more than great ability. We moderns are rather chary of attributing genius to any man; but if America in modern times has produced any men to whom real genius can properly be attributed, Mr. Hill is one of them. There are railways with lower grades than the Great Northern. But his was the first pioneer road built with low grades. There are roads which handle a greater tonnage per train. But Mr. Hill's name will always be associated with the history of the economies effected by the railways of the United States through the remarkable increases in tonnage per train which were made after the revival of business beginning in 1897 and prior to the panic of 1907. Other roads besides the Great Northern have been built into undeveloped territory. But to Mr. Hill alone of modern American railway men has been given the popular title of "empire builder," and this mainly because he not only built a railway into an undeveloped territory, but also did more than anybody else to get population into that territory, and then taught the population how to utilize the resources of the territory. Without any literary training, in his speeches, his magazine articles and his book, "Highways of Progress," he has been not only seer, philosopher and economist, but has developed a remarkable faculty for saying what he has to say lucidly and effectively.

Mr. Hill has long been an object of keen popular interest, not only because of the great success he has achieved in material affairs, but because of the very human qualities that he always displayed. As good a rough and ready fighter as ever lived, he has neither given nor taken quarter in his many financial battles, and yet, as a private individual, he has always been the soul of generosity. At times possessing the suavity of a diplomat, on other occasions he has shown a most violent temper, and has always been autocratic and impatient of restraint. No business man of prominence has thought more, or said more wise, piquant and caustic things. But, while he can be garrulous enough when he wants to be, he has never said anything about his plans for the future that was of any value as indicating his intentions to opponents who might particularly desire to know of them.

One of his most notable traits has been his extreme simplicity of manner and habit. He has a model farm of his own near St. Paul, which has produced many prize-winners, and formerly spent much of his time on it, driving into his office in the city each day. He frequently travels entirely alone between St. Paul and New York, stopping over a day at the Burlington offices in Chicago, and almost invariably walks regardless of the weather to and from the station, probably seldom recognized in his almost shabby attire with his faded old umbrella.



James J. Hill.

James Jerome Hill was born on a farm near Guelph, Ont., on September 16, 1838, of Scotch-Irish parents. Under the hard work of the farm he grew up sturdy and healthy. Between 7 and 14 he received a good schooling at Rockwood Academy, near his home, where he developed a marked aptitude for reading and study. His father's death when he was 14, made it necessary for him to go to work as a clerk in the village store, where, it is said, his first wage was $1 per week. In 1856, when 18, he set out for California, but within the year found himself on the steamboat docks at St. Paul, where he got employment as a shipping clerk.

He thus became identified, from his first arrival in the northwest, with transportation there; and he also from the first manifested the keenest interest in all that pertained to commerce and agriculture. In 1865 he became St. Paul agent for the Northwestern Packet Company, operating steamboats on the Mississippi river, and two years later, local agent for the St. Paul & Pacific railway, which operated a line about 10 miles long between the St. Paul wharf and St. Anthony's Falls, built soon after his arrival in that region. Through his work around the docks he had also become familiar with the products and requirements of the territory, and through his friendship and later business partnership with Norman Kitson, who maintained an ox-cart and sledge service to Winnipeg, Mr. Hill very early became acquainted with the conditions of the country farther northwest, to which he made several trips with or for Kitson. While working on the docks he had built up a business of his own of supplying fuel to the boats. This he later developed between

1869 and 1875 as head of the firm of Hill, Griggs & Company, and afterward of the Northwestern Fuel Company. During this time he brought the first boat load of eastern coal to St. Paul from near Peoria, Ill., via the Illinois and Mississippi rivers.

In 1870, with Kitson as partner, he organized the Red River Transportation Company and built two boats. These, in connection with a stage route, established the first through service between St. Paul and Winnipeg. While serving as agent of the railway it fell to his lot to pilot the scientists Louis and Alexander Agassiz, on a trip through the Red river and Lake Superior country, during which he learned something of the mineral wealth of the region, which later led to his extensive investments in mineral lands.

When Mr. Hill first went to St. Paul there was no agriculture north of that point. On his many trips to Winnipeg, on foot or horseback, in ox-carts, on sledges, and later by boat, in all seasons, he became thoroughly acquainted with the character of the country and convinced that the Red river valley could be made to grow wheat in abundance. At the same time he became more and more interested in the vast and almost unexplored territory further west. Meanwhile the St. Paul & Pacific had been extended as far as the Red river, but—under a management that was far more interested in the profits to be made by milking the Dutch bondholders than in its future as a railway—it had deteriorated into the proverbial streak of rust, and in 1873 became bankrupt. This was Mr. Hill's opportunity to carry out some of his ideas that had long been germinating for the development of the country. With Kitson he organized a syndicate to take over the property. Through Donald Alexander Smith, later Lord Strathcona, then agent of the Hudson Bay Company at Winnipeg, they enlisted the support of Smith's cousin, George Stephen, manager of the Bank of Montreal. After an appraisal of the property by a committee representing the Dutch owners they bought the control of the railway at about 40 per cent. of the par value of its securities. It is said the purchase actually required very little cash, being made on option, and paid for out of the proceeds of a bond issue, leaving control of the stock in the hands of the syndicate.

The road was reorganized in 1879 as the St. Paul, Minneapolis & Manitoba. Mr. Hill became general manager and George Stephen president. Mr. Hill was then about 40 years of age. But the years he had spent up to that time in gaining, by constant study and unceasing investigation and observation, a thorough knowledge of commercial and agricultural conditions, had served as the best possible preparation for the work he now undertook. In addition to possessing probably greater knowledge of the conditions of the northwest than any other man, with the possible exception of his partner Kitson, and to having far-seeing confidence in the possibilities of the country, he had the advantage of becoming interested in this neglected railway at the strategic moment. The vast tide of immigration from the East was beginning to turn strongly toward the northwest, and instead of being content merely to take advantage of the opportunity for present profit which the conditions presented he had the public spirt and the foresight to build for the distant future. He adopted a policy of reconstructing and extending the road, of attracting settlers to the country and of making rates that would encourage agriculture. He sent to England for fine cattle and horses, which were distributed among the farmers on easy terms of payment, furnished them with good seed, and in every way possible aided them to become firmly and prosperously established. Finding difficulty in persuading eastern capitalists to venture their money in his project he was often obliged to secure the necessary capital from abroad.

As the name of his road indicated, his attention was first directed toward opening a rail route through the Red river valley. The spring of 1880 witnessed a great boom in Winnipeg; and the line was rapidly extended to that point. He was one of the first to foresee the great future of the Canadian northwest as a wheat-growing country, and with his Canadian associates was greatly interested in Canadian railway building, being a member of the original syndicate which in 1880 undertook, in consideration of a large government subsidy both of money and of land, to build the Canadian Pacific from Montreal to Vancouver in 10 years. He had not, however, lost his interest in the great country lying immediately west of Minnesota, and in 1883 he definitely adopted this as the territory in which his energies were to be expended. He had continued to be the dominating spirit in the St. Paul, Minneapolis and Manitoba, and in 1882 was elected vice-president. In 1883 he was made president and gave up the last of his holdings in the Canadian Pacific, relinquishing to his associates, Donald Smith and George Stephen, the honor of the execution of that project.

He immediately had surveys made to the Missouri river, extended the line to Minot, N. D., and in 1884 definitely mapped out a route through Montana. In 1887 the line reached Great Falls, Mont., and was then extended 100 miles more to Helena. In 1890 the road was leased to the Great Northern, which Mr. Hill had organized in 1889, and of which he became president, and the road was completed to Seattle in 1893. In spite of the difficulty of raising funds for a line paralleling both the Northern Pacific to the south, which had been completed to Portland in 1883, and the Canadian Pacific, which was completed in 1888, a noteworthy fact in this connection is that the Great Northern was built without a dollar of cash government aid, and the original land grant of 3,675,000 acres was far less than the amounts received by other transcontinental lines.

Long before the road was completed Mr. Hill had sent agents to Sweden and other European countries to induce immigration to the territory traversed. This policy increased traffic while the low grades and lack of curvature which he had insisted upon from the first made possible a low cost of operation that soon produced a strong contrast in the financial results of the Great Northern and the earlier Northern Pacific. The latter became bankrupt, and in 1896 the Hill-Morgan interests secured control of it, as Mr. Hill said, in place of double-tracking the Great Northern. While pushing the main line to the Pacific coast Mr. Hill threw out branch lines as feeders in all directions. By 1900 the Great Northern system had 5,441 miles of operated line, and the Northern Pacific 5,203 miles.

Mr. Hill was now supreme in his own territory. But to the south of him the Harriman interests were building up another vast system. The two occasionally came into conflict in the border territory. The need for a controlled connection to the East had become imperative to both. Thus ensued the rapid flow of events which led up to the famous Northern Securities decision four years later.

During the fall of 1900 the Harriman interests bought some eight or nine millions of stock of the Chicago, Burlington & Quincy. Hill and Morgan had been trying to secure the Chicago, Milwaukee & St. Paul, but without success. Early in December, 1900, or January, 1901, after the Harriman interests had been similarly unsuccessful in acquiring any considerable amount of Burlington, the Hill interests opened negotiations with the executive committee of the board of directors of the Burlington for the purchase of its entire capital stock. These appear to have become known to the Harriman interests, who forthwith demanded an opportunity to share on equal terms with the Great Northern and Northern Pacific in the acquisition of the Burlington. The request was refused. In April, 1901, the Great Northern and Northern Pacific became joint owners of the road, paying in collateral joint 4 per cent. bonds $200 per share for the $108,000,000 par value of Burlington stock.

The Harriman interests then began to buy large blocks of Northern Pacific in the open market with a view to obtaining control of it. In the efforts of the Morgan-Hill interests to

recover the stock the price of Northern Pacific, which in 1896 had been as low as 25 cents, was forced up on May 9, 1901, to $1,000 a share. When the "show-down" came after that memorable conflict it was found that the Harriman interests had acquired $78,000,000 out of the total of $155,000,000 of the Northern Pacific stock. The capitalization of the Northern Pacific was divided into $80,000,000 of common and $75,000,000 of preferred. The Union Pacific interests held $37,000,000 of common and $41,000,000 of preferred, being a majority of the total, but not of the common stock. At the annual meeting in October the Harriman party could control the election of the board, but in January the preferred could be retired, leaving the Hill party in control of the common, a course which was subsequently followed. During the time which must elapse before the annual meeting this situation led to a compromise. J. P. Morgan was chosen to select a new board for the Northern Pacific in which every important interest should be represented.

It had long been the ambition of Mr. Hill and his associates to form a holding company for both the Great Northern and Northern Pacific which should perpetuate their policy and at the same time treat all stockholders alike. Now, with the active co-operation of the Harriman interests, and to promote permanent harmony, the work resulting in the Northern Securities Company was begun. A long search was made through the state corporation laws for a suitable charter, and on November 13, 1901, the company was incorporated under the laws of New Jersey. Slightly more than 96 per cent. of the Northern Pacific stock, including the Union Pacific holdings, and about 76 per cent. of the stock of the Great Northern, was exchanged for the stock of the Northern Securities Company on the basis of $115 per share for the former and $180 for the latter, the capitalization of the Securities Company at $400,000,000 being approximately equivalent to the agreed valuation of the constituent companies. Mr. Hill was made president, and the board of 15 directors was composed of six representatives of the Northern Pacific, four of the Great Northern, three of the Union Pacific and two unclassified.

Opposition to the Securities arrangement manifested itself immediately. Governor Van Sant of Minnesota called a conference of the governors of states directly affected, and Washington and Minnesota brought suit in the United States Circuit court for the dissolution of the merger. In March, 1902, the federal government also filed suit in the Circuit Court at St. Paul against the combination as in violation of the Sherman anti-trust law, of which the state anti-trust law was an exact counterpart. While the state suit was decided in favor of the company, the government suit resulted in a decision of the Circuit Court enjoining the Securities Company from voting the stock of the railway companies and from paying dividends on its own stock. On appeal the Supreme Court of the United States, by 5 votes to 4, on March 14, 1904, held the holding company illegal.

"The railways are still there," said Mr. Hill. "I have made my mark on the surface of the earth and they can't wipe it out."

So far as forcing the three railways into competition with each other was concerned, the decision had no practical effect. It did, however, restore to Mr. Hill and his associates the control of Northern Pacific which had been gained by Harriman in 1901. After the court had ordered the dissolution of the company the directors formulated a plan for the pro-rata distribution of the securities held by it which would have given the Harriman interests a large amount of Great Northern stock in place of the Northern Pacific which had been put into it. Harriman naturally preferred his Northern Pacific. and went into court to get it. After a long period of litigation the Supreme Court decided in favor of the original plan of pro-rata distribution, which left the Hill party in control of both roads, with about 25 per cent. of the stock of each, while Harriman held about 20 per cent., and the rest remained in the hands of the public.

In testifying before the Stanley committee during its investigation of the Steel Corporation last February, Mr. Hill said that the Securities Company was formed at a time when he was in "a very tight place."

"I had to raise in three months about $90,000,000," he said. "If I did not those properties would have been welded in with the Union and Southern Pacific and a bigger combination than ever was made in the country would have been the result."

While building up his railway system, and at the same time building up traffic for it by promoting the increase of agriculture in its territory, Mr. Hill was also building up auxiliary traffic producers by establishing steamship service on the Great Lakes and on the Pacific. It was his ambition to have a great world route across America to the Orient in competition with the Cape Horn route or the Suez canal. This purpose he once explained in a speech which illustrates his ideas of the development of the Northwest. He said:

"Our population is doubling every thirty years. At this rate, during the next 30 years we may grow to 150,000,000. What shall we do with this population? At the most not over one-third can be employed in manufactures, railroading, trades and the professions. The bulk of the remaining 100,000,000 must go to the land. The great increase will be in the valleys of the Ohio, Mississippi, Missouri and westward—the fertile prairies of the great central West and beyond, wherever irrigation is possible. Now, then, what will these 100,000,000 on the lands of the West produce? They will produce the three great staples of traffic—food, fuel and shelter, but food in the main.

"Now cross the Pacific and what do we find? Millions of people, and what can they buy? What can a man who earns a shilling a day—and that is the average wage of the Orient—buy of us? He will buy only what he is compelled to buy to sustain life. The principal demand will be for food—just the products which the present coming population of America's great central and western zone is prepared to furnish. The great traffic proposition is to carry our goods to the Orient, and bring theirs in return. The question is, Will this traffic go by the Pacific or by the Suez and Cape Horn? I hope that America will handle it, and by the Pacific. Geography and nature demand it and trade cannot resist them."

It was in pursuance of this idea that in 1909 the Colorado & Southern was added to the Burlington system and work was at once started on the construction of connecting lines for the purpose of opening a direct route from Galveston to Puget Sound, by which the cotton of the south might be transported to the Orient.

A recent development of the Hill system has been the construction of the Spokane, Portland & Seattle along the north bank of the Columbia river from Spokane to Portland, an example of unusually high class railway construction, which is owned jointly by the Northern Pacific and Great Northern. Mr. Hill has also invaded the Harriman territory by the building of the Oregon Trunk railway up the Des Chutes canyon in competition with the Des Chutes railway, built by the Harriman interests. On account of its direction and the heavy character of its construction it has been often stated that the Oregon Trunk represents the beginning of a line south into San Francisco, but this has been denied by Mr. Hill.

In April, 1907, Mr. Hill, then nearly 69 years of age, retired as president of the Great Northern and was elected chairman of the board of directors. He was succeded by his son Louis W. Hill, who had been trained to assume the management of the road, and who had been first vice-president since 1903.

In no other way has Mr. Hill made his influence more potent than in his aid to the development of agriculture. Familiar with every detail of farming himself, he has made it the business of his life to help the farmer to help himself. He has aided in the establishment of agricultural colleges, has given thousands of boys an opportunity to obtain an agricultural education, and has awarded innumerable prizes for agricultural products, while hiring the best experts to teach the farmers of his territory the principles of scientific agriculture on model farms. For years he has traveled over the country preaching the doctrine of "back to the land," and the necessity of encouraging the intensive development of agriculture by irrigation and by soil culture.

"Men without land," he has said, "are a mob, and land without men is a wilderness."

He has sent agents to study the trade of the Orient and to create a market in the east for the food products of this country, even going so far as to publish literature in the Oriental languages on the uses of flour in the effort to replace the rice diet of the Orient with American bread.

One of his cardinal principles of life was illustrated in his testimony before the Stanley committee regarding the deals involving the ore properties leased to the Steel Corporation. The ore was bought originally, he said, for the purpose of controlling its transportation for the railway, and because of the doubtful legality of direct ownership of the ore lands by the Great Northern he had purchased it individually, and turned it over to the Lake Superior Company, Limited, in trust for the benefit of the stockholders of the railway. The property, estimated to contain about 400,000,000 tons, was later transferred to the Great Northern Ore Company, which leased it to the Steel Corporation and an ore certificate was given to the holder of each share of Great Northern. Mr. Hill was repaid the purchase price and 5 per cent. interest while the investment was outstanding, from the profits from the ore lands, and the stockholders received their interest absolutely without cost.

"I could have kept it myself or given it to the poor," said Mr. Hill." "I always had a rule that if I could make money for myself in a transaction connected with the company I could make it for the stockholders, and that has been the rule of our company from the beginning. I have worked for the company for 33 years and the shareholders have relied on me, and everyone of them has had just the same salary as I have."

Philosophic, paternal and altruistic, Mr. Hill in his speeches and interviews has been an interesting public figure for years, and while the paternalism of some of his most pessimistic warnings has occasionally been resented, his statements have always commanded the highest respect. No other living American has so often accurately and publicly predicted the turn business affairs were going to take. Both speeches and interviews have always been brimful of statistics, but reinforced and enlivened with the whimsical humor and "ginger" of his own personality, which have been especially efficient in expressing his contempt for the intelligence of the average lawmaker on business subjects.

"You might just as well try to set a broken army by statute as to change the laws of commerce by legislative enactment," he often said. Any proposal of government ownership of railways was sure to arouse his caustic comment. Testifying before the Minnesota railway commission in 1907 he said he would be only too willing to have the United States take over his road and run it, but that if the government should go into the railway business it would be nothing short of a lottery and the country would soon find it had an elephant on its hands.

"Then," he continued, "it would be compelled to engage in another lottery to get rid of the elephant." . . . "If the government had charge of all the railways in the country Congress would be kept busy making appropriations night and day, and the districts with poor representation and sparse population would be left in the lurch. This would mean that the districts in question would go to seed as far as the railways were concerned and that the railways would get rusty, figuratively speaking, and become less and less valuable."

While some of the greatest railway men in the country have received their training under Mr. Hill, contact with the rougher side of his personality or the attraction of higher salaries has caused many of them to transfer their allegiance to other roads. "He expects everything to be done yesterday," has been often said of him. Although he was supposed to have retired from active office several years ago, he has never given up his close attention to details, as many a man has discovered to his sorrow, and promotions and dismissals on the Great Northern have often come with the suddenness of lightning. A story is told of a stenographer who had been rapidly promoted to the head of a department when he was "fired" within a week for unfitness for the position. "Why didn't you retain him in his former position as assistant where he was doing well?" Mr. Hill was asked. "I will have no failures in my business," he replied.

Another story is told of a high official whom Mr. Hill had taken away from another road at a big salary, but who offended him by expecting too long a vacation. He was allowed the vacation without objection, but when he returned from Europe he found another man in his job. Another official is said to have received his first intimation that he was not making good by finding his desk out in the hall on his arrival at the office one morning. On the other hand, hard task master though he is, he has always given unstinted loyalty and unlimited opportunity to those who in his judgment have made good.

Mr. Hill has three sons, all of whom have been trained to take an active part in their father's business enterprises, Louis W. Hill, who succeeded him as president of the Great Northern, and who now takes his place as chairman of the board; James N., vice-president of the Northern Pacific, and Walter J., who has been connected with the management of the ore properties.

Louis W. Hill was born at St. Paul on May 19, 1872. After his graduation from Yale University in 1893 he entered the service of the Great Northern, and after holding various positions was made first vice-president in 1903. In 1907 he succeeded his father as president. It is understood that he is relinquishing that office in order to be able to devote more attention to the management of the Hill properties as a whole, particularly the extensive ore properties, and that he will retain an active interest in the railway properties.

In constitution, in energy, in ability and in many personal qualities, Mr. Hill has inherited much from his father. Trained for railway work, his administration of the Great Northern has been very successful; and the change now taking place doubtless will make him an important factor in the business and transportation affairs of the country.

A CONTRACTOR'S VIEWS ON RAILWAY CONTRACTING.*

In earlier years, when single-track roads followed contours, rights of way were donated and bonuses offered, contractors had to be pioneers rather than financiers, and had to watch mountain passes and Indians rather than economies of method. The chief engineer was then a pathfinder and his contractor a sturdy pathmaker. Respect for each other and mutual confidence were engendered by common hardships and deeds of prowess.

With the increase of population, the demands of competition and of economy in operation brought double tracking, grade reduction, building of immense yards, terminal facilities, freight houses, union stations, and heavier bridges. These problems, growing in difficulty and magnitude, called for engineers of technical training as well as experience. So the contractor has necessarily been forced to improve his methods, devise labor-saving machinery, broaden the material markets and create an organization to direct his work. As the duties of both engineer and contractor increased, they saw less of each other. Correspondence took the place of verbal messages, accompanied by elaborate plans instead of sketches, detailed specifications instead of directions, voluminous contracts instead of memorandums, and inspectors instead of line riders. Crude and perhaps awkward as were the arrangements in those days, the pendulum has now swung too far in the other direction.

From a commercial standpoint contracting, like any other business, consists of securing the contract, executing the work and securing payment. In securing contracts, personality plays a large part. No one cares to bind himself, or take the responsibility for binding his corporation, with an individual or organi-

*From a paper read before the St. Louis Railway Club by A. P. Greensfelder, secretary of the Fruin-Colnan Contracting Co., April 12, 1912, including also some of the discussion following the reading of the paper.

zation of which he does not approve. Their business principles, their capacity and faithfulness of performance are factors to be considered, but even deeper is the satisfaction of relying upon those who take personal pride in their duties. It is only natural and proper that parties of repute and character are more favorably considered than others. Until recently it was usually thought desirable to contract with the lowest bidder, irrespective of his character and responsibility, and enforce performance, if necessary, through the courts. But experience has abundantly demonstrated that it is not worth while to do business in any form with those you do not respect.

Inspection of construction work, like inspection of the products of other industries, is conducive to better quality. The main contention of the contractor is for good inspection by experienced persons as against cheap inspection by young and unqualified parties.

The financial element of contracting is necessarily an important one and involves many problems. Recently a number of states have withdrawn the protection of contributory negligence, risk of employment and fellow servant laws and are insisting upon workmen's compensation acts, old age pensions, and insurance against sickness and non-employment. These new features, together with the agitation for eight hours of work and a fixed minimum wage, bring new burdens which to be equitable, must be uniform and definite.

A bond of some surety or bonding company for fulfillment of contract on the part of the contractor, or a certified check accompanying bids insuring signing of contracts, is frequently required. It would occasionally be just as proper for the owner also to give bond insuring timely delivery of site, non-interference with the plan of work and prompt payment of amounts due.

Contracts usually require as liquidated damages a time forfeit without offering a bonus, interest on retained percentages and deferred balances, or recompense for delays caused by the owner without reference to administration or organization expenses of the contractor.

The owner usually retains the right to speed up the work or finish uncompleted work at the expense of the contractor without stating a rate of expected progress, but retains at the same time the privilege to reduce unit quantities or stop the work without recognition of preliminary or plant expense of the contractor.

Division of authority or separation of parts of work necessary to the whole through lack of control of the contractor is usually an irritating and expensive cause of delay. This condition arises where the owner thinks he can save money by reserving or letting separately various parts of a job without recognition of interest losses on investment due to inevitable friction and delays.

The selection of sub-bidders has usually to be confirmed by the owner, without any agreement to pay the difference in the cost of sub-bids to the contractor. Changes of plans or specifications are arbitrary decisions often made by the engineer, without regard to the method or plant originally contemplated by the contractor in estimating the work. Responsibility for faulty designs, for unpractical or risky operations, are often placed on the contractor where he has absolutely no part in their inception. Where through lack of time or investigation on the part of the owner there is included a definite unit price for additional work, due to lack of experience of methods, this price may be very unfair under the actual conditions that arise. Where definite quantities are assured or where indefiniteness is reduced to a minimum such unit prices may be the only way to prevent unbalanced bidding, but in ordinary cases a proportion of some bid price of the contractor would be more equitable. One cent per cu. yd. per 100 ft. for excavation overhaul seemed to be standard the country over, without regard to haul by cart, wagon or train.

Losses to either contractor or owner, often both, are caused by lack of clear, concise specifications. Only too frequently specifications are hewn out of ancient ones, without eliminating clauses which have no bearing on the case in hand or adapting them to suit modern methods and materials. Blanket clauses are only too common, endeavoring to place upon the contractor sole responsibility for unforeseen conditions. A contractor is no more responsible for acts of providence, unusual necessities of traffic, underground conditions, and the like, than the owner, and should not be asked to assume their entire burden. Improper or insufficient borings only make proper classifications of excavated materials the more essential. Similarly the natural slopes of the materials encountered decide the logical lines for determination of quantities to be allowed.

The throwing of responsibility for correctness of plans and dimensions, or verification of same with the actual conditions, upon the contractor is a plain shirking of duty. The responsibility for "imperfect" work should not rest solely upon the contractor if such work has satisfied the inspector. "Imperfect" is only a relative term, and the owner must have confidence in the judgment or integrity of his inspector. It is only proper, too, that the cost of investigation of quality should be borne by the owner, if on examination the work is pronounced good.

If the engineer reserves the sole power of arbiter he indicates at once an attitude of unfairness. A clause should be inserted to allow both parties to choose an arbiter, and if the two appointees cannot agree, let them choose a third. The cost of such arbitrations should be borne equally by both parties.

DISCUSSION.

O. F. Harting (Term. R. R. Ass'n of St. Louis): Some of these unfair clauses have been in use since time immemorial, and will probably continue to be used until there is a radical change in our present system of contracting. If cutthroat competition between contractors were eliminated, or even mitigated to a certain extent, by the formation of large corporations bordering on monopolies, the contractor, while still the servant, would be an independent one. Such trusts, or near-monopolies, should be so well equipped with capital, experts and machinery of all kinds, and preferably with factories and mills for manufacturing and producing tools, building materials, etc., that they could perform their work economically, expeditiously and satisfactorily. With a reputation along these lines, the services of these contracting trusts would be in such demand that they would be in a position to claim a voice in the drafting of the contract and specifications.

Richard Morey (Morey-Faulhaber Construction Company) made six suggestions for getting low bids from good contractors; namely, (1) give detailed information as to all work, dimensions, quantities, classes of materials; (2) ask for bids on as many units as can be used; (3) rewrite contracts and specifications, cutting out obsolete matter; (4) recognize responsibility of contractor in connection with requirements for the bond and the retained percentage; (5) have good inspectors, at least as intelligent as contractors' foremen; (6) give full quantities on the monthly estimates, also see that payments are made promptly.

E. C. Finley (Manufacturers' Ry.): The contention of the contractor is for competent and experienced inspection. The contention of the owner should be in the same direction. It seems to have become almost common practice to put young men of little or no experience on the job as inspectors, keeping the more experienced men in the office. The situation should be the reverse, especially when the inspector is not in close touch with his superior. While these young men are usually educated, honest and loyal, they lack the one thing so necessary to proper judgment, experience. No engineer, in writing specifications, can anticipate all the conditions that may arise during a piece of construction. Young inspectors, through their loyalty and honesty, but without experience, sometimes force contractors to do work at a much greater cost to the contractor and of less value to the owner, in order to carry out the letter of the specifications.

ELECTRIFICATION OF RAILWAY TERMINALS.*

An Outline of the Investigation Being Made at Chicago and Discussion of the Proposed Change of Power.

BY W. F. M. GOSS,
Dean and Director, College of Engineering, University of Illinois.

A proposition involving the complete electrification of steam railway terminals in any considerable city constitutes a problem which touches closely the comfort and welfare of the community involved. It is conceivable that through electrification the beauty and cleanliness of a city may be so affected as to stimulate greatly its prosperity and growth, and it is conceivable also that through electrification a burden of financial responsibility may be created which will place severe limitations upon its commercial and industrial development. The problem in all its technical and business aspects is one of so many ramifications that few men can hope completely to comprehend it. It presents factors, however, which are both fundamental and sufficiently simple to admit of easy discussion, and it is to some of these that I propose giving brief attention.

The city of Chicago presents at the present time an area of 194 square miles, which is cut up by 2,600 miles of railway track. The Committee of Investigation on Smoke Abatement and Electrification of Railway Terminals of the Chicago Association of Commerce, in the study of its problem under the immediate direction of Horace G. Burt, has thought it wise to add certain areas so as to include outlying transportation lines correlated with those within the city limits. The area thus defined, which is known to the committee as Zone B, embraces 235 square miles and contains about 4,000 miles of railway track. It is estimated that 60 per cent. of this track mileage is in yards, sidings, freight and passenger terminals and industrial tracks.

A map of the city of Chicago shows its railway yards to be spotted over its entire area. Many citizens of Chicago in contemplating such a map have difficulty in escaping a tinge of feeling that all this territory occupied by the railways, extending as it does like a web over the city, is held as a result of some process of usurpation; that the railways are where they are and as they are as a result of a process which in some way has been unfair to the other property holders of Chicago, and he is inclined to resent the railway ownership. Now, the fact is that, considering the matter in the large, there can be no justification for any such feeling. The railways came to Chicago and built out from Chicago when the city was comparatively small. They did not buy residence property and raze buildings for the purpose of constructing freight yards, but they went outside of the limits of the town where cheaper land could be had and built their freight yards, and nobody complained because they did it. In course of time, however, the city expanded, and the railway yards, which originally were outside of the city, became surrounded by improved property. We may, therefore, enter upon the present discussion with a distinct understanding that the tracks which spread over the city are where they are because the people of the city have needed the service they render.

The people of Chicago, on the other hand, if content to live in the midst of railway yards, are inclined to be somewhat particular as to what is permitted to go on in those yards. It goes without saying that Chicago must meet and solve many problems which for her are acute, but which in slower-going towns are less pressing. The suppression of smoke and the elimination of dust and dirt and of unnecessary noise are all matters to which she is bound to give most serious attention, and it is in the consciousness of this fact that she is demanding the electrification of railway terminals.

RAILWAYS MAKE ONLY PART OF SMOKE.

If it were true that the electrification of Chicago railway terminals would at once banish smoke from the atmosphere of the city, certain important unknowns in the general problem would be eliminated, but it happens that there are in Chicago other smoke and dust-making agencies besides the 1,600 locomotives which are required to operate its railways, and the percentage of the whole that is contributed by its locomotives is not known. Statistics show that within the city are 17,000 steam boilers served by nearly 10,000 stacks. Thousands upon thousands of domestic fires warm and otherwise serve the homes of this city, and these are not all smokeless. Even the motor cars of Chicago add their quota of smoke, and the wasting of their tires their quota of dirt. It may be that the railways' proportion is, after all, not large, and that the complete abolition of this portion through electrification, or otherwise, would result in but little change in the atmospheric conditions above this city. This is one of the phases of the general problem to which the Committee of the Association of Commerce, to which I have already referred, has properly directed its attention. The committee first of all is seeking to determine the necessity for electrification. In its pursuit of this question it is making a study of the effect of smoke upon the health and convenience of people, and as measured in the loss and damage it occasions to property. It is making a survey of the actual atmospheric conditions of the city. Its experts have developed a commercial laboratory on wheels which is capable of taking up its position in a series of predetermined stations for the purpose of determining at each station the chemical composition of the atmosphere, the extent of pollution by dust, and, so far as practicable, the composition of dust collected. By this process it hopes to be able to determine what it is that constitutes atmospheric pollution in the city of Chicago. In its effort to determine the source from which this pollution originates, it is making a careful statistical study of the fuel consumed by the locomotives of railways, in the metallurigcal furnaces of industries, in gas works, in power plants, on steam vessels, and in the domestic fires of the city. Along with this study of fuel consumption there is being made a study of visible smoke and of dust particles as discharged from the top of stacks over hundreds of typical fires of each of these classes. In this thorough manner an effort is being made to determine the amount of smoke and the amount of solid particles discharged as a result of the consumption of a unit quantity of coal in all the various classes of service in which coal is employed within the zone embraced by the committee's study. So perfectly have the plans been laid, and so scientifically are they being developed that it is easily possible to foresee an accurate determination of a percentage of the total pollution which is chargeable to railway operation. It is, therefore, fair to assume that a large and unknown factor which at present appears in the general problem of smoke suppression and the electrification of Chicago railway terminals will soon be evaluated. If it should appear as a result of this investigation that the atmospheric conditions of Chicago would be materially improved by the prohibition of the steam locomotive within the city limits, the people of Chicago will be justified in desiring most strenuously such a consummation.

An approach to the next stage of the problem discloses very

*Abstract of an address before the City Club of Chicago on June 3, 1912. Dean Goss is a member of the Chicago Association of Commerce Committee of Investigation on Smoke Abatement and Electrification of Railway Terminals.

many possible avenues. There are many indications of an assumption on the part of the people that the only sure way to secure the elimination of locomotive smoke is through electrification. It apepars that the validity of this assumption has not been conceded by the railways. In the first place, the railway companies point to the fact that under the rigorous administration of the Chicago smoke department they have made great progress in reducing the smoke incident to the operation of existing locomotives. It has been stated that the smoke department estimates show that the railways within the last year have cut down the amount of smoke production fully one-half. Neither the department nor the railways admit that the limit of possible improvement has been reached. The railways also call attention to the fact that the steam locomotives of today are hand-fired; that it may be possible through the equipment of these locomotives with stokers practically to eliminate all smoke and greatly to reduce the amount of solid particles discharged from them. If it should appear after a thorough investigation that the railways are, relatively speaking, not large producers of smoke, and if it should appear that further reductions in the amount of smoke they produce are practical, the arguments to sustain a change would be materially weakened. As I have indicated, facts upon these points are likely soon to be forthcoming.

ELECTRIFICATION FOR SUBURBAN SERVICE.

The general problem of electrification presents two aspects, the characteristics of which are, to my mind, wholly different. These are, first, electrification as applied to suburban passenger traffic, and second, electrification as applied to all other traffic, including, of course, switching, through freight, and through passenger service.

The simpler phase of the problem is that which involves the suburban passenger traffic. Every detail which enters into this problem has been threshed out by extensive construction in many parts of the country. The experience which has been gained in the electrical operation of elevated railways in Chicago, in the electrical operation of the subways in New York and Boston, and in the extensive electric operation of interurban roads in many parts of the country, bears directly upon this aspect of the problem. Among the advantages which the public would derive from electrically operated suburban service in Chicago may be counted that of reduced atmospheric pollution, of cleaner cars, of freedom from inconveniences due to the presence of smoke and cinders, and probably also that of more frequent and more rapid service. The operating railway companies would find some gain in an increased capacity of existing track facilities, in the incidental advantages which would accrue from the maintenance of a more attractive and a more effective service, and in the anticipated gain in business which the improved service would in time attract. There are no real difficulties in bringing about such a change, except such as grow out of the fact that the railways are now equipped for steam operation. To electrify means that the existing steam operated railways which are earning dividends for their companies must practically be wiped out of existence, and new railways built and equipped to conform with other standards of practice must be supplied. Very little of that which is now possessed, excepting the track and track structures, and possibly, though not probably, the carbodies, could be of use under the new conditions. Everything electrical, such as power plants or their capitalized equivalent, transmission and distributing lines, new cars or trucks for cars and repair shops in which the new equipment can be kept in order, must be supplied. While I am not authorized to speak for the railways, I imagine that the difficulty is not that the cost of these things, so far as they apply to suburban service, is prohibitive, but that there is no immediate way by which existing revenues can be materially increased as the result of such a change, and because present-day directors and present-day stockholders are content with what they have. The considerations controlling the financial aspect of the matter are somewhat similar to those controlling the matter of track elevation. The progress of track elevation places heavy burdens on the railways affected, for which the immediate return is slight, but the work once accomplished raises the character of the railway establishment to a higher standard of construction, and permits its operating service to be gradually tuned up to higher stages of efficiency. The electrification of suburban service in Chicago, while hedged about by similar difficulties, would lead to similar beneficial results, and in the absence of a plan which might insure immediate and complete electrification, it is reasonable to expect the gradual development of suburban electrification.

COMPLETE ELECTRIFICATION OF DOUBTFUL ECONOMY.

The complete electrification of Chicago steam railway terminals constitutes a problem of far greater proportions. As already noted, such a development would, as set forth by Mr. Burt, spread over an area of 235 or more square miles, would need to deal with approximately 4,000 miles of track and perform a service which now involves the use of 1,673 steam locomotives apportioned as follows:

Service.	Number.	Per Cent.
To yard service	555	33
To through passenger service	367	22
To road freight-train service	364	22
To suburban passenger service	208	12
To freight and passenger transfer service	179	11

If accomplished, it would give the public of Chicago the most marvelous railway terminal that the world has ever seen. The difficulties are not technical, but chiefly financial, and the problem of financing such an undertaking is not one which can be unceremoniously dumped on the railways, for the interests of the railways and of the community served by them are more or less identical, and neither can afford to ignore or injure the other. Probably no one knows the first cost of such an improvement, nor what its effect would be upon the earning capacity of the railways. Those who are especially qualified to speak on this subject are not talking. The Association of Commerce Committee, to which I have referred, will have all the facts later, but no figures have as yet been given out. By the end of another year the Association of Commerce committee will, it is hoped, be ready with an estimate based upon an extensive research which will be entitled to the confidence of all parties in interest. The public can well afford to reserve its judgment until the committee's work is completed.

Not only must the railways consider the charges incident to the first cost of electrification, but they must be prepared for some increased cost in operation. Contrary to a commonly expressed popular conception, the actual movement of a train of cars from one point to another upon the terminal railways of Chicago can probably not be accomplished more cheaply electrically than by steam. Again, in the through train service, the electric operation of Chicago terminals would not reduce cost. Under present conditions, through trains approaching Chicago from a distant division point are brought directly into the city by their steam locomotives. The electrification of the terminals would involve the withdrawal of the steam locomotives and the attachment of an electric locomotive at a terminal located at the boundary of the electrified zone. Assuming no electrification, the additional cost of fuel and of service of the steam locomotive crew for taking the train on to its Chicago terminal, as compared with the costs entailed where the locomotive gives up its train outside of the city, is so small as to be almost negligible, while with electrification each train must bear its share of the cost of the electric service which receives it at the boundary of the zone and takes it into the city terminal; that is, electrification would make two operating divisions where one now exists, and short divisions are expensive to operate. There are many other minor difficulties and there are also minor advantages which are revealed by an analytical study of the problem, but excepting in

the one matter of smoke and dirt elimination, the advantages in Chicago where there is no operation in tunnels, are all minor advantages.

WOULD THE MONEY BE BETTER EXPENDED FOR OTHER PURPOSES?

Since, therefore, complete electrification as an embellishment unsustained by other changes can yield little or no immediate return to the railways, numerous pertinent objections thereto naturally appear. For example, it may be urged that instead of being forced into such an expenditure, the railways should be encouraged to make investments in certain other directions which would be of commercial value to Chicago and at the same time return them a profit. They could improve the service between the outlying country and Chicago by supplying, where needed, double track instead of single track, they could fill in the long stretches of track which are now without automatic signals with devices which will better protect trains and give increased facility in handling them, and they could provide against car shortage by supplying new equipment. It is safe to say that all of Chicago's railways have pressing needs in one or all of these directions, and that some must continue in need because of their inability to finance a more generous program.

Not all of the forty railways entering Chicago are prosperous. It would be extremely difficult for some to secure the capital necessary for the complete electrification of their Chicago terminals by the sale of securities constituting a lien upon property extending out over the country and through other insistant cities. Compulsory electrification as a measure for immediate execution would add to their present embarrassment and could hardly fail to work to the ultimate disadvantage of the business interests of Chicago.

Here it will be well to note that no great scheme involving the electrification of steam-operated lines, has ever been voluntarily entered upon by a railway company merely for the purpose of raising the character of its service from the conditions of steam operation to those which become possible through electric operation. Where electrification has been undertaken there has always been some large business purpose of interest to the railway company, in the working out of which electrification has entered more or less as a detail.

It would seem that the city of Chicago, instead of insisting upon the complete and immediate electrification of its steam railway terminals as they now exist, would do well to study carefully in conjunction with the railways, perhaps through the instrumentality of a commission having large powers, the whole terminal problem. Such a commission could work out in a large way a development adequate to future needs. It could rearrange and simplify existing tracks, it could combine and extend existing terminal stations, it could consider every factor affecting the efficient movement of cars and the transfer of merchandise and passengers from railway terminals to destination. The working out of such plans might be expected to give not only increased facility, but also reduced cost in operation. Such a procedure, covering all of the transportation interests of Chicago, would constitute a stupendous undertaking, but nothing less can satisfy the real requirements of this great, rapidly-growing, modern city. The working out of any large scheme of terminal betterment, which can be justified as an economic measure, would at once provide an opening through which electrification as a detail could be, and probably would be, readily admitted.

The extension of the Smyrna-Aidin railway, Asia Minor, from Dinair, its terminus, to Egherdir is being rapidly completed. Unless adverse weather conditions and unforeseen engineering difficulties, are encountered, the line will be completed in 1912. This extension will tap the most fertile part of Asia Minor, and the exploitation of rich forests and mines existing in those regions will be thus made possible.

RAILWAY SIGNAL ASSOCIATION.

The June meeting of this association was held in New York City this week, beginning at 10 o'clock Wednesday morning, with President C. C. Anthony in the chair. In a short address Mr. Anthony called special attention to the instruction circular issued since the last meeting for the purpose of enabling the committees to avoid duplication of work; to the manual, which is now almost finished and ready for distribution; and to the new special committee on signaling requirements of electric railways, which was appointed since the March meeting (see lower part of page 114 in Proceedings of March meeting).

The first business was the report of committee No. 3, submitted by B. H. Mann. The voltage ranges set forth on page B-11 were discussed at considerable length, with the result that paragraph 1 was accepted—i. e., "30 and less"; paragraph 2 was revised to read "over 30 and including 175," and paragraphs 3, 4 and 5 were referred back to the committee. The report of sub-committee A, by W. H. Arkenburgh, was accepted with a few slight amendments. Following this the specifications for clay conduit and fiber conduit were submitted by A. R. Raymer and, with several suggestions and amendments were approved.

The report of committee No. 6, J. C. Mock, chairman, was presented at the afternoon session. Drawings No. 1084 and No. 1085 were approved. Drawings 1180, 1181, 1182 and 1185 were submitted as a progress report.

The two first named drawings are a pipe carrier, and the other four are of a cable post and a relay box including details and assembly.

Committee No. 5, on manual block then presented its report. L. R. Mann, Missouri Pacific, represented the committee. This report drew out considerable discussion, principally as to the manner in which it was drawn up. The sense of the meeting with respect to the drawings submitted was that they should, in the final report, represent only installations which members of the committee know to be in service, or such as the committee would recommend as standard practice. Several of the changes in the rules for the maintenance and operation of interlocking plants and block signals, which the committee had prepared, were voted unnecessary.

The committees on definitions, on mechanical interlocking, on electric railway signaling, on wires and cables, and on storage battery, presented their reports on Thursday.

The section of the proposed Pan American Railway which begins at Las Cruces, Porta Guatemala, and which will end at Ayutla, passing through Cuatepque, is now under construction. The grading work has been completed to Santa Joaquina, 12 miles. Rails have been laid to the Tallechos river, where a viaduct 580 ft. long is being built. It is expected that the track will soon be laid to Mile 15, only five miles from Coatepeque. The difficulties to be encountered on that five mile section will make it impossible to conclude the work before the end of the year. The remainder of the railway to the Mexican frontier does not offer any difficulties.

The Japanese government railways report increased earnings on all their lines in the western district. Several sections of branch lines were opened during 1911, and surveys for extensions are being made. The Oita branch line from Kokura, on the main line from Moji to Oita, on the northeast coast of Kiushu, was completed and the last section of 40 miles between Yanagigawa and Oita was opened to traffic on November 1, 1911. Construction of this section was commenced in April, 1908, and the total expenditure was $2,115,504, or about $53,136 per mile. There are 7 tunnels, with an aggregate of 5,189 ft., 100 bridges aggregating 5,810 ft., and 11 stations. As the various sections have been completed they have been opened to traffic, that to Beppu Hot Springs having been opened in July, 1911.

General News Section.

The magnificent new hotel and passenger station of the Grand Trunk at Ottawa, Ont., were opened for business June 1.

The names of 21 employees were added to the pension roll of the Rock Island Lines during the month of May, increasing the total number of pensioners to 134.

The Boston, Revere Beach & Lynn has increased the pay of its employees an average of about 5½ per cent. About 1,000 men will receive the benefit of the increase.

At a meeting in Indianapolis on June 4 a committee of seven railway officers was appointed to have authority over the settlement of disputes regarding the inspection of cars interchanged at Indianapolis.

The New York Central & Hudson River has leased to a real estate firm the block from Vanderbilt avenue to Madison avenue, Forty-second to Forty-third street, New York. The block will probably be used for an office building.

The Chicago & North Western is rock ballasting its roadbed from Central street, Evanston, to Chicago, including three tracks for a distance of 13 miles, for the purpose of eliminating annoyance to suburban passengers on account of dust.

Non-union freight handlers employed at the freight yards of the Chicago, Burlington & Quincy in Chicago, were attacked by strikers as they were leaving their work on June 8, and a riot ensued in which about 500 men were engaged, resulting in the death of one of the strikers and several serious injuries.

The educational bureau of the Union Pacific is planning a series of motion picture exhibitions showing correct and incorrect ways in which employees do things in different branches of the service. The pictures will be accompanied by explanatory lectures to be delivered before meetings of employees at division points all over the system.

The Merchants' Association, of New York City, having appointed a committee to investigate the prices of anthracite coal in the city, has sent a long letter to the presidents of the railways carrying anthracite coal, calling upon them to assist in the proposed investigation; and suggesting that the impartial investigation which is to be made by the association may be of benefit to the railways.

Lieut.-Col. George A. Zinn, of the United States Army engineering corps, held a hearing in Chicago on June 4 on complaints against the fixed bridge of the Chicago, Burlington & Quincy over the Illinois river at La Salle, Ill., which have been made by the Rivers and Lake Commission of Illinois and the Illinois Park Commission, as well as residents of several nearby towns, on the ground that the bridge is an obstruction to navigation.

According to an officer of the Western Union Telegraph Company, the Titanic tragedy produced the greatest volume of telegraphic communication of any single event in history. The day the Carpathia reached New York, Western Union wires handled 715,000 words [of press matter] compared with a previous high record for a single day of 433,000. That was when the last Republican national convention was in session. In addition to this 45,000 words were cabled to Europe.

The Chicago & North Western has compiled figures showing that the total number of arrivals and departures at its new Chicago passenger terminal during the first year since the station was opened on June 4, 1911, was 18,797,500, an average of 51,500 per day. During May, 1912, 47,215 persons were served in the lunch room and dining room, while the total for the year was 585,200. The volume of United States mail moving in and out of the terminal has averaged 150 tons a day.

The government has asked the Supreme Court to review a decision of the lower courts, in which it is held that a railway company that has leased all of its property to another company need not pay the federal corporation tax. The Mine Hill & Schuylkill Haven, which leased to the Philadelphia & Reading for 999 years all rights except that to be a corporation, convinced the lower court that it was not "carrying on or doing business" within the meaning of the corporation tax law.

A hearing in the Illinois Central car repair graft cases was held before Judge Sullivan in the municipal court at Chicago on Monday. Counsel for the defendants presented arguments to show that the indictments returned against the four officers of the road eighteen months ago should be quashed, on the ground that the railway had used the municipal court and the state's attorney's office as a collection agency to force the settlement of civil suits by the threat of criminal prosecution.

At Washington on Monday of this week the House Committee held a hearing on the bill presented in Congress by Mr. Martin, designed to provide for a further and more rigid limitation of the hours of service of railway telegraphers, signalmen, etc. Large numbers of railway officers and representatives of railway labor organizations were present at the hearing. General Manager W. T. Tyler, of the St. Louis & San Francisco, showed the great financial burden which would be imposed on his line if the proposed law were to be enacted.

The Senate has not only sustained the lower House of Congress in withholding appropriations from the commerce court for the ensuing year, but has taken favorable action on another amendment to the appropriation bill, designed to legislate the five judges of the court out of office. As the law now stands, these judges; on the abolition of the commerce court, would become judges of the circuit court, but this the Senate amendment is designed to forbid by limiting the number of circuit court judgeships. It is said that President Taft threatens to veto the appropriation bill if it is passed with these amendments.

By a strike of trainmen and motormen employed by the Boston Elevated last week Friday, the service of that company, both on the elevated and on the surface lines, was badly crippled, and for two or three days there was a good deal of violence in the streets, with some rioting. For two or three nights the surface car traffic was suspended entirely because of violence. A considerable number of men continued at work, and on Monday of this week the company claimed that it had enough new men to perform tolerably good service if granted police protection. As we go to press, it is reported that the State Board of Conciliation and Arbitration has secured a promise both from the company and from the representatives of the strikers to join in a conference which is expected to lead to a settlement.

Among the merit marks recorded in favor of employees of the Rock Island Lines recently, as reported in the *Rock Island Employees' Magazine,* are 10 for Conductor Cowdrey, of Oklahoma, for securing a passenger who had intended to take a rival line, and later for securing three and a half other passengers under similar circumstances. Conductor Martin was commended for securing six and a half passengers by notifying an agent in advance to have the tickets ready on the arrival of the train. The presence of "half" passengers in these cases makes one suspect that perhaps the conductor's diplomacy consisted partly in the judicious distribution of peanuts or candy. Fireman Delaney, of Missouri, received 10 merit marks for avoiding a serious delay by getting his train over the road with a scant supply of coal, and also for assisting in taking a pair of wheels from a car on a side track and putting them under the tender of his engine.

The Brooklyn Rapid Transit Company, Brooklyn, N. Y., is trying on its surface street railways in that city a "stepless car" similar to that which was recently put in use in Manhattan. All passengers board the car at a center side entrance. This opening is 6 ft. 6 in. wide. It provides an entrance aisle 33 in. wide and two aisles for exit 21 in. wide on either side. The center platform, which passengers reach upon entering, is only 14 in. above the top of the running rail. The conductor is seated at the entrance in charge of a fare recording device. After paying fare the passenger may step into the car toward either end. Both passengers and conductor signal the motorman to stop the car by pressing an electric push button. The signal for starting consists of small electric lamps placed in front of the motorman which are lighted only by the closing of all the doors. The conductor can stop the car quickly by operating a special valve within his reach.

Committees of conductors, of brakemen, and of firemen of the Pennsylvania Railroad who have been complaining to the general manager because of the arrangement entered into by the road for the operation of electric trains jointly with the Hudson & Manhattan, announce that they are going to call for a vote of their constituents to empower the leaders to declare a strike if such action shall be deemed necessary. The committees of the three brotherhoods took action separately, having been forbidden to act jointly by the Court of Common Pleas. The injunction of the court was issued on petition of John P. Hemphill, a member of the firemen's brotherhood, who alleged that the leaders of his organization had no legal right to participate in the joint conferences. He declared that the necessary two-thirds vote of the members of his brotherhood had not been secured. He also asked that the other brotherhoods be restrained from attempting to control, dictate to, or represent the firemen's brotherhood.

The Pennsylvania Railroad's Trees.

In the past ten years 4,615,227 trees have been planted by the Pennsylvania Railroad, and in 1911 alone 515,703 trees were transferred from the company's nursery at Morrisville to permanent places on railway property. The Morrisville nursery covers 36 acres. The present stock on hand is 2,296,833, of which 2,072,166 are forest trees, and 224,667 ornamental plants.

The conservative logging operations of the road were continued in 1911, two new plots being undertaken. The total area involved is about 1,500 acres, from which it is expected to cut 750,000 ft. of timber. Up to the end of last year the area which had been conservatively lumbered was 1,850 acres. The rejuvenation of this otherwise worthless forest land will add to the ultimate forest wealth of the state of Pennsylvania. It is not possible to find a market for small wood, so this kind of material is converted into charcoal; the total amount produced up to date being 215,000 bushels. The two tie and timber treating plants of the Company, one at Mt. Union and the other at Philadelphia, in 1911 treated 869,000 ties, 13,000,000 ft. of lumber and timber, and miscellaneous products equivalent to about 2,500,000 board feet.

Frisco Station Agents' Plan Extended.

The St. Louis & San Francisco has decided to extend to all divisions the plan of increasing the authority of the local station agent to cover the solicitation of traffic and the settlement of minor claims in his territory which was described in the *Railway Age Gazette* of February 16, page 278. The plan was first tried on the western division, beginning on January 1, and has proved so successful that after July 1 all division superintendents will be held responsible for securing traffic in their territory. The agents will also represent the industrial department locally, and station forces will be increased where necessary to enable them to handle the increased work.

Arbitrators Chosen.

The board of arbitration which is to settle the differences between the Eastern railways and their enginemen is announced to consist of the following: Daniel Willard, president Baltimore & Ohio; P. H. Morrissey, president of the Railroad Employees' and Investors' Association and formerly head of the Brotherhood of Railway Trainmen; Oscar S. Straus, former secretary of commerce and labor; Dr. Albert Shaw, editor of the *Review of Reviews;* Otto Eidlitz, president of the Building Trades Employers' Association; Charles R. Van Hise, president of the University of Wisconsin, and Frederick N. Judson, a lawyer, of St. Louis. Mr. Willard and Mr. Morrissey were named under the arbitration agreement reached between the railways and the enginemen, and were empowered to select the five remaining members of the board, but they could not agree and the task devolved on Commissioner Charles P. Neill, Judge M. A. Knapp and Chief Justice White of the Supreme Court. Mr. Straus was secretary of commerce and labor under President Roosevelt, ambassador to Turkey twice and a member of The Hague Court. Mr. Eidlitz is a leader in the New York Building Trades Employers' Association. Mr. Judson was a member of the Hadley securities commission.

First Aid to Anxious Passengers.

[Chicago Great Western circular to conductors, station agents and others.]

The most important part of your train is not the fine engine on the front end, the up-to-date Pullman on the rear end, nor even the fireman who shovels the coal that makes the steam, but the *passengers* aboard—the people who pay the bills. And this includes the traveler in the smoker, as well as the first-class passenger in the parlor car; each pays the price asked for the particular service rendered, and it is clearly up to the railway company to see that he gets that for which he pays.

Therefore, so far as you or the company are concerned, all are equal with respect to the comfort, convenience and *peace of mind* which they expect in exchange for the money paid for tickets. While some of them may be entitled to more comfort, elegance and convenience than others—on acount of paying more—all are entitled to an equal distribution of that which makes for peace of mind, the relieving of anxiety and dispelling of worry.

Unforeseen difficulties arise which cause delays to trains. At such times the timid passenger will be the first to grow anxious, worried and perhaps annoying in asking questions, which, if not answered politely, correctly and understandingly, will add to the worry and anxiety.

It is the wish of the management that in all cases of delays to passenger trains, conductors shall make it their business to see that their trainmen are properly informed of the circumstances, in order that passengers may be given reliable information as promptly as possible, to afford opportunity for changing previous arrangements for meeting friends or business appointments, if they see fit to do so. Be plain in your explanations; don't be technical. Should a passenger desire to send telegrams, assistance should be rendered in this respect; trainmen will offer to accept such messages, especially when trains are detained at points inaccessible to telegraph offices, and see that they are filed at the earliest possible moment.

Despatchers will see that conductors of delayed trains are promptly notified as to the probable time trains will reach terminals, and furnish any additional information for which conductors may ask. They will likewise notify station agents on request.

Station agents having passengers for delayed trains or patrons waiting for friends on such trains, will call on despatchers for particulars, when necessary; if the delay is a serious one, or, if a number of people are waiting, they will post bulletins or make loud verbal announcements in each of the waiting rooms.

We want it said of our road that our passengers are treated as our guests, and that we do not lose interest in them as soon as their money drops into our till.

We believe that a *satisfied passenger* is one of the best advertisements a railroad company can have. Help to make a walking advertisement of every passenger.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomaston, Boston, Mass.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York; next convention, September 12, Seattle, Wash.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.; annual, June 18-21, Detroit, Mich.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENDS.—W. C. Cooder, Carew building, Cincinnati, Ohio; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York. Convention, October 7-11, Chicago.

AMERICAN ELECTRICAL RAILWAY MANUFACTURERS' ASSOC.—George Keegan, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York; annual, November 20, 1912, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, 3d week in Oct., Baltimore, Md.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, Monadnock Block, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOC.—J. W. Taylor, Old Colony building, Chicago. Convention, June 17-19, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—M. H. Bray, N. Y. N. H. & H., New Haven, Conn. Convention, July 9, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

American Society of Engineering Contractors.—J. R. Wemlinger, 13 Park Row, New York; 2d Tuesday of each month, New York.
American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., New York.
American Wood Preservers' Association.—F. J. Angier, B. & O., Baltimore, Md. Convention, 3d week in January, 1913, Chicago.
Association of American Railway Accounting Officers.—C. G. Phillips, 143 Dearborn St., Chicago; annual, June 26, 1912, Quebec, Que.
Association of Railway Claim Agents.—J. R. McSherry, C. & E. I., Chicago.
Association of Railway Electrical Engineers.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago; annual, October 21-25, Chicago.
Association of Railway Telegraph Superintendents.—P. W. Drew, 135 Adams St., Chicago.
Association of Transportation and Car Accounting Officers.—G. P. Conard, 75 Church St., New York. Convention, June 25-26, Bluff Point, N. Y.
Canadian Railway Club.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.
Canadian Society of Civil Engineers.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.
Car Foremen's Association of Chicago.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.
Central Railway Club.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.
Civil Engineers' Society of St. Paul.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.
Engineers' Society of Pennsylvania.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.
Engineers' Society of Western Pennsylvania.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.
Freight Claim Association.—Warren P. Taylor, Richmond, Va.
General Superintendents' Association of Chicago.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.
International Railway Congress.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.
International Railway Fuel Association.—D. B. Sebastian, La Salle St. Station, Chicago.
International Railway General Foremen's Association.—L. H. Bryan, Brown Marx building, Birmingham, Ala. Convention, July 23-26, Chicago.
International Railroad Master Blacksmiths' Association.—A. L. Woodworth, Lima, Ohio. Convention, August 15, Chicago.
Master Boiler Makers' Association.—Harry D. Vought, 95 Liberty St., New York. Convention, May, 1913, Chicago.
Master Car Builders' Association.—J. W. Taylor, Old Colony building, Chicago.
Master Car and Locomotive Painters' Assoc. of U. S. and Canada.—A. P. Dane, B. & M., Reading, Mass. Convention, September 10-13, Denver, Col.
National Railway Appliances Assoc.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.
New England Railroad Club.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.
New York Railroad Club.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.
Northern Railroad Club.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.
Peoria Association of Railroad Officers.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Tuesday.
Railroad Club of Kansas City.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.
Railway Business Association.—Frank W. Noxon, 2 Rector St., New York; annual, November 20, 1912, New York.
Railway Club of Pittsburgh.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.
Railway Electrical Supply Manufacturers' Assoc.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.
Railway Gardening Association.—J. S. Butterfield, Lee's Summit, Mo.; next meeting, August 13-16, Roanoke, Va.
Railway Industrial Association.—G. L. Stewart, St. L., S. W. Ry., St. Louis, Mo.
Railway Signal Association.—C. C. Rosenberg, Bethlehem, Pa. Convention, Oct. 8-11, Quebec.
Railway Storekeepers' Association.—J. P. Murphy, Box C, Collinwood, Ohio.
Railway Supply Manufacturers' Assoc.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. assocs.
Railway Tel. & Tel. Appliance Assoc.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.
Richmond Railroad Club.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.
Roadmasters' and Maintenance of Way Association.—L. C. Ryan, C. & N. W., Sterling, Ill. September 10-13, Buffalo, N. Y.
St. Louis Railway Club.—B. W. Fraumenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.
Signal Appliance Association.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.
Society of Railway Financial Officers.—C. Niquist, La Salle St. Station, Chicago.
Southern Association of Car Service Officers.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.
Southern & Southwestern Railway Club.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.
Toledo Transportation Club.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.
Traffic Club of Chicago.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.
Traffic Club of New York.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.
Traffic Club of Pittsburgh.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.
Train Despatchers' Association of America.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 18, 1912, Louisville, Ky.
Transportation Club of Buffalo.—J. M. Sells, Buffalo; first Saturday after first Wednesday.
Transportation Club of Detroit.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.
Traveling Engineers' Association.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.; annual, Aug. 27-30, Chicago.
Western Canada Railway Club.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.
Western Railway Club.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.
Western Society of Engineers.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

The Illinois Traction System has been admitted to the per diem rules agreement of the American Railway Association.

The railway commissioners of Canada are making an extensive investigation of the freight service of the principal railways of the Dominion, the commissioners having examined 1,500 complaints of delays from shippers which have been received by the Canadian Manufacturers' Association.

The Erie & Western Transportation Company, operating the Anchor Line of boats on the Great Lakes, announces the opening of its passenger season. Wireless telegraph apparatus has been installed on every steamship, and each will have sufficient life boats and rafts to care for all of the passengers and members of the crew.

The annual meeting of freight traffic officers of the Baltimore & Ohio was held this week at Toledo, Ohio, that city, by the acquisition of the Cincinnati, Hamilton & Dayton, becoming an important point on the Baltimore & Ohio system. Following the meeting the party inspected the railway terminals at Detroit, and also the facilities at the principal points on the C. H. & D., including Indianapolis. It is planned to close the sessions with a banquet at Cincinnati, Friday evening.

The Baltimore & Ohio has created a Bureau of Agriculture, the head of which will be James H. Stewart, of Morgantown, W. Va., with the title of Agricultural Agent. Mr. Stewart will work in co-operation with the industrial department of the road. He was formerly director of the agricultural experiment station of West Virginia, and has taken a prominent part in the great progress which the State of West Virginia has made in farming during the past fifteen years. The new bureau will continue and increase the work of the railway company in advising and helping the farmers along its lines.

The Cumberland Valley, operating 115 miles of line, reports that not a single passenger has been killed or *injured* as a result of a train accident on that road during the past five years; and the press agent thinks that this record is probably unique. During this time the number of passengers carried was 8,859,203; passenger mileage 162,425,602. The Long Island, another road controlled by the Pennsylvania, reports that no passenger has been killed in a train accident since June 1, 1893—19 years. During that time the number of passengers carried was 369,016,054 (to December 31, 1911); passenger mileage, 5,413,268,798. The great bulk of the passengers of the Long Island belong to the class called commuters, and the press agent observes, with reason, that "commuting" on the Long Island has been made as safe as modern science and engineering can make it. He also observes that the passenger mileage just mentioned is equal to more than one-third of the population of the entire world; a fact of mathematical interest, perhaps, yet one which probably will attract but little notice on the other side of the globe.

Transportation and Car Accounting Officers.

A summer meeting of the Association of Transportation and Car Accounting Officers will be held at the Hotel Champlain, Bluff Point, New York, June 25 and 26. Reports will be received from the following committees: Committee on Car Service; Committee on Office Methods and Accounting; Committee on Handling Railway Business Mail; Committee on Conducting Freight Transportation; Committee on Conducting Passenger Transportation; Committee on Joint Interchange and Inspection Bureaus, and Committee on Names. Officers and new members of the committees will be elected.

Freight Car Balance and Performance.

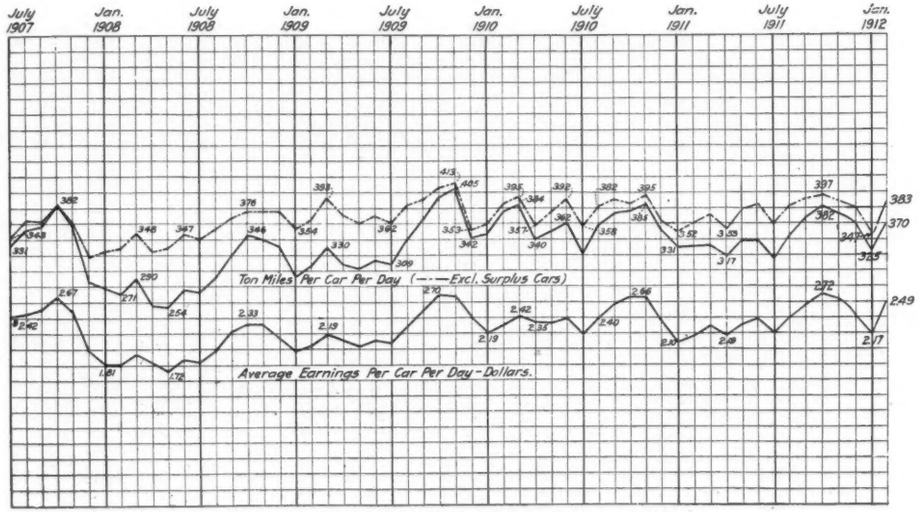
Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 122, covering car balance and performance for February, 1912, says:

"The miles per car per day averaged 22.9, including surplus cars, compared with 20.4 in January and 22.6 in February, 1911. Ton miles per car per day increased from 325 in January to 370

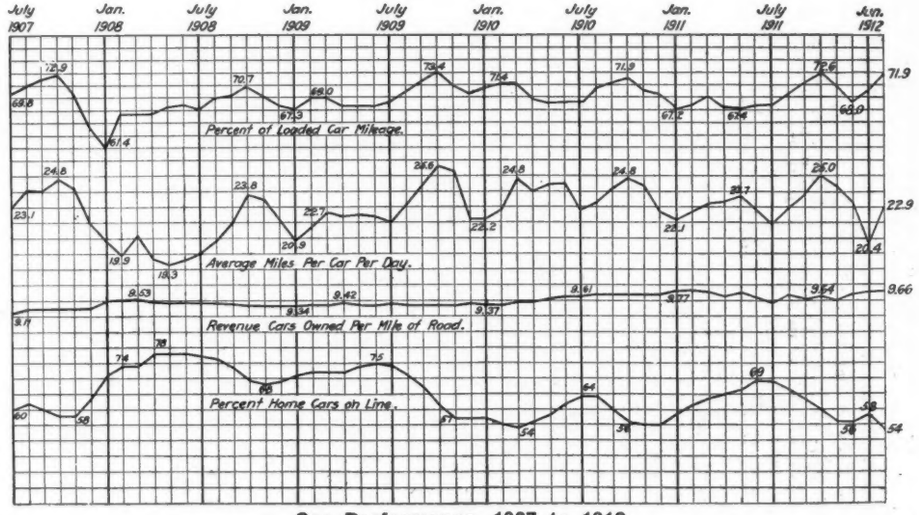
FREIGHT CAR BALANCE AND PERFORMANCE IN FEBRUARY, 1912.

	New England.	N. Y., N. J., Del., Md., Eastern Pa.	Ohio, Ind., Mich., Western Pa.	Va., W. Va., No. and So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Wis., Minn.	Mont., Wyo., Neb., Dakotas.	Kan., Colo., Okla., Mo., Ark.	Texas, La., New Mex.	Ore., Idaho, Nev., Cal., Ariz.	Canadian Lines.	Grand Total.
Revenue freight cars owned	84,604	708,699	214,422	187,519	173,263	396,076	17,690	138,127	26,670	144,136	111,393	2,202,599
Average number of system cars on line	42,956	269,941	106,477	99,082	89,124	222,073	8,432	69,094	21,214	68,675	70,981	1,068,049
Railway-owned cars: Average foreign on line	47,248	184,730	110,085	69,079	81,672	168,780	14,456	60,084	27,698	57,397	49,243	870,472
Total Railway-owned cars on line	98,014	454,671	216,562	168,161	170,796	390,853	22,888	129,178	48,912	126,072	120,224	1,938,521
*Excess	5,600	*45,420*	2,140	*19,358*	*2,467*	*5,223*	5,198	*8,949*	22,242	*18,064*	8,831	*55,470*
Per cent. of cars on line to total owned:												
Home	51	54	50	53	52	56	48	50	79	43	64	54
Foreign	56	36	51	37	47	43	81	39	104	38	44	43
All railways	107	90	101	90	99	99	129	89	183	81	108	97
Private cars on line	4,712	31,355	11,903	4,397	8,071	15,348	1,217	7,105	3,522	12,165	3,700	103,495
Total, all cars on line	102,726	486,026	228,465	172,558	178,867	406,201	24,105	136,283	52,434	138,237	123,924	2,049,826
Per cent. of cars in shop	6.61	6.51	5.66	6.29	7.32	6.22	3.59	8.56	4.54	7.00	5.07	6.48
No. of freight engines owned	1,428	10,467	3,053	3,141	2,821	6,414	525	2,708	714	2,692	2,148	36,111
Average cars on line per freight engine owned	72	62	75	55	63	63	46	50	73	47	58	61
Total freight-car mileage	50,239,645	475,068,574	126,403,425	125,285,795	113,207,594	265,961,524	21,326,246	87,552,751	32,967,044	114,547,824	83,783,257	1,496,343,679
Average miles per car per day	16.9	23.4	19.1	25.0	21.8	22.9	31.1	23.4	20.9	28.6	23.3	22.9
Per cent. loaded mileage	74.4	68.6	74.1	69.1	74.9	72.9	76.8	71.8	67.0	72.9	83.0	71.9
Ton-miles of freight, including company freight	620,074,511	8,236,345,702	2,265,961,139	2,051,127,463	1,699,882,618	3,211,609,585	354,796,133	1,284,347,657	335,335,671	1,680,302,777	1,502,543,528	23,242,326,784
Average ton-miles, including company freight:												
Per car-mile	12.3	17.8	18.3	16.4	15.2	14.8	17.1	14.7	12.4	14.9	17.9	16.2
Per loaded car-mile	16.6	26.5	24.6	23.7	20.3	20.7	22.2	20.7	18.2	20.4	21.6	22.6
Per car per day	208	417	350	410	332	340	533	343	260	423	418	370
Gross freight earnings	$6,625,635	$47,180,935	$11,851,699	$12,313,011	$11,810,448	$27,266,894	$2,476,456	$10,863,009	$3,575,533	$16,682,816	$9,547,850	$160,194,286
Average daily earnings: Per car owned	$2.44	$2.42	$1.91	$2.26	$2.35	$2.37	$4.83	$2.61	$4.62	$3.55	$2.96	$2.51
Per railway car on line	2.29	2.67	1.89	2.52	2.38	2.41	3.73	2.90	2.52	4.58	2.74	2.62
All cars on line	2.20	2.49	1.79	2.46	2.28	2.31	3.54	2.75	2.35	4.18	2.66	2.49

*Deficiency in italics.



Car Earnings and Mileage, 1907 to 1912.



Car Performance, 1907 to 1912.

in February as compared with 330 in the month of February, 1911.

"The proportion of home cars on line decreased from 58 per cent. in January to 54 per cent. in February compared with 61 per cent. in February, 1911. The loaded mileage increased from 69.2 per cent. in January to 71.9 per cent. in February. This figure for February, 1911, was 67.8.

"There was an increase in the average earnings per car per day from $2.17 in January to $2.49 in February, compared with $2.17 in February, 1911."

The accompanying table gives car balance and performance in the month covered by the report, and the two diagrams show car earnings and car mileage and certain car performance figures monthly from July, 1907.

Demurrage Officers.

The American Association of Demurrage Officers held its annual meeting at San Francisco May 10 and 11. E. E. Mote, manager of the Pacific Car Demurrage Bureau, was elected president of the association for the ensuing year, and W. E. Backensto, Denver, Col., vice-president. A. G. Thomason, Old South Building, Boston, Mass., was re-elected secretary and treasurer. The time of the convention was devoted chiefly to a discussion of the changes proposed in the Uniform Code of Car Demurrage Rules, which rules have since received favorable action by the American Railway Association. The prevailing sentiment among the demurrage managers in regard to the rate per day to be charged on cars is in favtor of an increase over the rate now generally charged. Readers who have seen Mr. Mote's reports on the good results of a $3 rate in California will readily understand that the atmosphere of San Francisco was, no doubt, favorable to a decision of this kind by the meeting.

The association listened to an interesting address by Allan P. Matthew, of San Francisco, assistant attorney of the Western Pacific. Mr. Matthew was formerly secretary to Interstate Commerce Commissioner Lane, and thus is familiar with car service matters.

Hearing on Western Classification.

The hearing before Examiner Lyon and J. M. Jones, chief of the tariff bureau of the Interstate Commerce Commission, on objections to Western Classification No. 51, which was begun at Chicago on May 29, was continued to June 6, and a large number of witnesses representing shippers of various commodities affected were heard. Aside from the testimony as to specific items, which in most cases revealed a desire on the part of the shipper to have the classification adjusted to suit the convenience of his particular business, much of the testimony consisted of arguments for and against the adoption of such a rule as Rule 10 of the Official Classification, which permits the broad extension of carload rates to mixed carload shipments, in the West.

H. C. Barlow, traffic director of the Chicago Association of Commerce, declared that the opposition to such a rule was based entirely on selfish considerations, and favored mixed carloads in all territories as making for more economical transportation. H. G. Wilson, representing the Kansas City Commercial Club, and representatives of several western jobbers, contended that the mixed carload privilege would operate to the advantage of the big jobbers in Chicago and the East by enabling them to deal direct with the small dealers, thereby eliminating the smaller western jobber. A representative of the National Cash Register Company testified in favor of the mixed carload rule, as operating to the advantage of both carrier and shipper. The secretary of the Chicago Wholesale Grocers' Association stated that a canvass of 170 wholesale grocers had shown them almost unanimously in favor of rule 10, and advocated its adoption on the ground that the saving in transportation cost would ultimately work to the benefit of the consumer. W. J. Harper, representing the National Wholesale Druggists' Association, asked for additional mixtures on drug shipments. Thomas L. Wolf, rate clerk of the Illinois railway commission, presented a lengthy statement in favor of the adoption of a rule similar to rule 10, permitting mixtures on a favorable basis of rates open to all shippers alike as distinguished from the present practice of the Western Classification which permits mixtures at carload rates only when specifically provided for. He declared the extension of the mixing privilege to some shippers and not to others was discriminatory and that the Official Classification Rule 10, which applies to the entire carload the rating of the highest rated article in the shipment at the highest carload minimum weight, is a simple, direct, economical and practical way of arriving at a hating to be charged on articles in carload mixtures.

Frank B. Montgomery, traffic manager of the International Harvester Company, objected to some of the provisions governing minimum weights on agricultural implements, as provided in rule 6B, saying that smaller dealers would have difficulty in loading carloads up to the minimum weights named. A representative of the railway mail service appeared on behalf of the Postoffice Department to protest against the elimination of the mixture of mail sacks and pouches on the ground that it would mean an advance of 50 per cent. in the rate on 300 carloads of such freight shipped by the department in a year.

The state railway commissions represented by Clifford Thorne, chairman of the Iowa commission, presented a long list of amended rules to be substituted for those formulated by the classification committee. At the close of the hearing Mr. Thorne stated that in view of the action of the commission in granting a second suspension of the classification the work of the so-called "classification committee" representing 18 state commissions had been accomplished, and hereafter the state commissions will each present their cases individually.

Robert C. Fyfe, chairman of the Western Classification Committee, appeared on behalf of the committee to defend its work and to cross-examine the shippers' witnesses. W. D. Dickinson, general attorney of the Rock Island, also assisted in the cross-examination. Further hearings are to be held before Commissioner Clark at San Francisco on June 27 and at Seattle on July 8.

June Crop Report.

The June report of the condition of the growing crops, based upon the ratio of the average condition on June 1 shows as follows:

Spring Wheat—Acreage, 19,201,000, compared with 20,381,000 acres last year; condition, 95.8 per cent. of a normal, compared with 94.6 per cent. last year, and 93.8 per cent. the 10-year average; indicated yield per acre, 13.8 bus., compared with 9.4 bus. last year, and 13.4 bus. the five-year average; estimated total production, 265,000,000 bus., compared with 190,682,000 bus. last year.

Winter Wheat—Acreage 25,744,000, compared with 29,162,000 acres last year. Condition, 74.3 per cent. of a normal, compared with 80.4 per cent. last year, and 80.9 per cent. the 10-year average; indicated yield per acre, 14.1 bus., compared with 14.8 bus. last year, and 15.5 bus. the five-year average; estimated total production, 363,000,000 bus., compared with 430,656,000 bus. last year.

All Wheat—Indicated yield per acre, 14 bus., compared with 12.5 bus. last year, and 14.6 bus., the five-year average; estimated total production, 628,000,000 bus., compared with 621,338,000 bus. last year.

Oats—Acreage, 37,844,000; condition, 91.1 per cent. of a normal; estimated total production, 1,109,000,000 bus., compared with 922,298,000 bus. last year.

Barley—Acreage 7,574,000; condition, 91.1 per cent. of normal; indicated yield per acre, 25.2 bus.; estimated total production, 192,000,000 bus., compared with 160,240,000 bus. last year.

INTERSTATE COMMERCE COMMISSION.

The Interstate Commerce Commission has announced that hearings will be held before Examiner Prouty in the investigation of railway weighing practices at Grand Rapids on June 17, 18 and 19; at Detroit on June 20, 21 and 22; at Columbus on June 24, 25 and 26, and at Indianapolis on June 27.

The Western Fruit Jobbers' Association has complained to the commission against the rates on grapes from producing points in Illinois and Missouri to points in Kansas. They say that the roads advanced their rate on August 1, 1911, and that during the past year fruit growers have been losing money.

The commission has suspended the regulations governing the transportation of baggage, which were filed by nearly all the roads to become effective July 1. These regulations provided for an additional charge per inch for each piece of baggage more than 45 in. long, and for an additional charge for weight in excess of a present standard. Exceptions were made for immigrants' baggage.

It is announced that the commission will make a general investigation, on all the principal railways throughout the country, of allowances paid for the use of private cars (especially refrigerators) and the charges for icing; also minimum weights charged for commodities carried in refrigerator cars. Extensive investigation is to be made also into the reasonableness of rates on lumber from a great number of southwestern points.

Certain Class Rates Reduced.

Medford Traffic Bureau v. Southern Pacific. Opinion by Commissioner Lane:

Defendant's present class rates for the transportation of traffic in classes 1 to 4, inclusive, from Medford, Ore., to certain designated stations in California, found to be unreasonable, and lower maximum rates prescribed for the future.

No Jurisdiction Over K. C. Viaduct.

Kansas City, Mo., and Kansas City, Kan., v. Kansas City Viaduct & Terminal, et al. Opinion by Commissioner Clark:

Complainants seek an order requiring the establishment, or restoration, of routing for certain interstate electric passenger cars over a viaduct that is owned by a company that is not and never has been a carrier subject to the act. The Commission has no jurisdication of the company owning the viaduct, and no power to order the present routing changed as prayed. (24

All Rates from Oklahoma Into Texas Reduced.

Corporation Commission of Oklahoma v. Abilene & Southern, et al. Opinion by Commissioner Clements:

The complainants claim that all rates, both class and commodity, from points in Oklahoma to points in Texas are both unreasonable in themselves and unjust, as compared with rates from Texas into Oklahoma.

From 1907 to 1909 the same jobbing rates were effective from Oklahoma jobbing points into Texas on the first four classes as now apply from Texas into Oklahoma. Texas was divided in 1909 into eleven groups, and standard rates were applied from points in Oklahoma to these various groups in Texas. No change, however, was made in the so-called jobbers' rates from Texas into Oklahoma. There are various causes which have made the relation of these rates abnormal. It was partly on the theory that jobbers in Oklahoma got their goods at a lower cost than jobbers in Texas. It is doubtful, however, if this is now the case since the establishment of law water rates to Galveston.

The Rock Island acknowledges that the difference between northbound and southbound rates is unreasonable and proposes a schedule which it is willing to put into effect. The original complainant, also, proposes a schedule which amounts to reducing the rates from Oklahoma into Texas to the basis of the jobbers' rates now in effect northbound. The Oklahoma Traffic Association, also, proposes a set of rates which suggests the first-class rate of the Oklahoma jobbers' scale up to three hundred miles (which is now the northbound rate) with a slight reduction beyond. The scale differs from the complainants' proposed scale in that instead of selecting rates in intermountain territory for comparative purposes, certain southwestern class rates are used, namely, from Kansas City and St. Louis to representative points in the states of Oklahoma, Kansas, Arkansas and Texas.

The commission finds that class and commodity rates from Oklahoma into Texas are now unreasonable and discriminatory. Inasmuch, however, as a revision is asked on all classes on the basis of the jobbers' scale, the resulting adjustment would be somewhat low for application between these states. The different interests affected by a change in these rates had better get together and agree on a new schedule in accordance with the general views expressed by the commission; and, the commission will hold the case open until such a schedule of rates is suggested. It is the commission's view that a mileage scale should be used up to three hundred miles, and that groups should be used beyond that distance—if thought advisable—and that Oklahoma, as well as Texas, should be grouped. (I. C. C., 23, 688.)

Reparation Awarded.

Huntingdon Lumber Co. v. Illinois Central et al. Opinion by the commission:

The rate on wheat from Clinton, Ky., to Huntingdon, Tenn., reduced from 24 cents per 100 lbs. to 19 cents. (23 I. C. C., 507.)

Galveston Commercial Association et al. v. Galveston, Harrisburg & San Antonio Railway et al. Opinion by the commission:

A rate of 80 cents per 100 lbs. on bottles of wine, in less than carloads, shipped in cases from Galveston, Tex., to New Orleans, La., found unreasonable to the extent that it exceeds the rate contemporaneously maintained in the opposite direction. (23 I. C. C., 512.)

Complaint Dismissed.

Portsmouth Steel Co. v. Baltimore & Ohio et al. Opinion by the commission:

The rate on limestone from Martinsburg, W. Va., to Portsmouth, Ohio, was voluntarily reduced for the sole purpose of stimulating movement, and reparation is now asked on the former rate of $2.53 per ton. The commission does not find that this former rate was unreasonable. (23 I. C. C., 510.)

Incubators, K. D.

Texas Seed & Floral Co. v. New York, Chicago & St. Louis et al. Opinion by the commission:

Western classification provides fifth-class rate for incubators and brooders K. D. flat, boxed, minimum C. L. weight 30,000 lbs. The complainant shipped mixed carloads of brooders and incubators, the incubators being crated with the outside lamp and the legs removed and packed inside, and testimony shows that this is the extreme limit to which incubators can be knocked down. The complainants claim that the rule prescribing the rate on K. D. incubators is unreasonable and cannot be complied with, and that the charge made of second-class rate is unreasonable, and the commisison finds that fourth-class rate instead of second-class rate should have been charged and the western classification rule should be amended accordingly. (23 I. C. C., 504.)

STATE COMMISSIONS.

The Louisiana railway commission has announced a hearing on June 25 to consider a proposed order that wire screens made of fine mesh wire cloth shall be provided in the windows of all cars carrying passengers within the state. The commission will also at the same hearing consider a rule requiring all railways in the state to answer tracers within three days after filing.

The New York State Public Service Commission, Second district, has established a division of transportation, the chief of which is Charles R. Vanneman, heretofore one of the inspectors of steam railways. J. B. Stouder has been appointed inspector, in the place of Mr. Vanneman. No announcement has yet been made as to a successor to W. L. Derr, who has resigned to go to the Chicago Great Western.

The Maryland Public Service Commission has rejected the petition of the New York, Philadelphia & Norfolk for permission to issue $1,250,000 stock as a dividend to its shareholders. It was established to the satisfaction of the commission that, as claimed by the petitioner, there has been diverted from the surplus net earnings for betterments a sum in excess of the amount of the stock named in the petition. This money would have been available for dividends had it not been used thus. The commission holds that no security issues are permissible except directly for extensions or betterments or for the legal refunding of outstanding indebtedness.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF APRIL, 1912.

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	143	$69,194	$30,703	$109,224	$17,454	$26,946	$3,852	$48,864	$4,930	$102,046	$7,178	—$2,570	$4,200	$408	—$14,579
Alabama Great Southern	309	282,836	85,336	400,920	59,266	84,205	12,597	131,268	11,656	298,992	101,928	—1,056	13,735	87,137	34,251
Ann Arbor	292	121,429	39,038	170,810	20,359	22,219	3,898	75,918	7,567	129,961	40,849	3,765	13,986	30,628	15,647
Arizona Eastern	366[1]	129,898	37,471	177,554	24,974	15,727	2,460	47,251	7,630	98,042	79,512	243	12,000	67,755	42,896
Atchison, Topeka & Santa Fe	8,201[2]	5,201,396	1,947,635	7,916,994	810,304	1,173,497	158,640	2,354,398	152,108	4,648,947	3,268,047	.....	307,211	2,960,836	483,906
Atlanta & West Point	93	52,293	36,919	98,924	12,963	19,160	4,760	32,856	4,394	74,133	24,791	175	5,189	19,777	—1,965
Atlantic City	167	68,834	64,947	142,383	34,763	17,237	1,594	81,478	1,153	136,225	6,158	—3,851	7,000	—4,693	—1,647
Baltimore & Ohio—System	4,433[3]	6,017,888	1,116,418	7,589,078	799,338	1,320,998	161,207	2,725,932	162,262	5,169,737	2,419,341	—65,817	252,116	2,101,408	—25,528
Belt Ry. Co. of Chicago	21	.....	.....	232,547	14,452	27,071	452	95,330	4,127	141,432	91,115	.....	6,250	84,865	5,633
Boston & Maine	2,245[4]	2,275,077	1,189,075	3,755,653	351,493	568,373	36,294	1,730,749	79,343	2,766,252	989,401	14,812	172,351	831,862	196,435
Central of Georgia	1,915	737,224	264,936	1,095,217	152,185	199,581	35,395	409,853	41,818	838,432	256,785	4,660	54,100	207,345	89,508
Central Vermont	411	249,141	70,357	347,195	20,124	61,784	7,656	172,786	8,255	270,605	76,590	165	12,200	64,555	14,590
Chesapeake & Ohio Lines	2,288[5]	2,558,249	439,522	3,113,796	357,651	656,636	49,154	951,491	72,716	2,087,648	1,026,148	—4,480	84,750	936,918	251,609
Chicago & Erie	270	297,397	53,699	387,410	54,529	78,625	19,746	214,475	10,127	377,502	9,908	489	4,250	5,658	—54,410
Chicago, Indiana & Southern	359[6]	243,588	22,694	285,407	47,341	80,264	7,480	112,555	9,089	256,729	28,678	.....	13,000	16,167	—17,643
Chicago, Indianapolis & Louisville	617	358,727	136,462	545,621	77,855	92,487	17,569	244,675	14,113	446,699	98,922	.....	23,914	75,008	—78,849
Chicago, Milwaukee & Puget Sound	2,059[7]	1,170,129	213,758	1,415,268	105,305	168,841	39,390	435,645	26,421	775,602	639,666	—3,963	95,000	568,372	221,654
Chicago, Milwaukee & St. Paul	7,511	3,532,901	1,039,604	5,054,242	716,324	911,391	115,764	2,402,711	92,742	4,238,932	815,310	—3,041	231,911	580,358	—478,339
Chicago, Terre Haute & Southeastern	351	84,426	18,779	106,664	21,414	25,070	2,877	36,501	6,873	92,735	13,929	—91	8,700	5,138	—36,619
Cincinnati, New Orleans & Texas Pacific	337	648,314	129,381	821,520	97,289	194,059	21,866	249,212	19,723	582,149	239,371	—94	21,800	217,477	66,850
Cincinnati Northern	245[8]	95,008	4,602	114,008	21,286	22,276	2,553	48,108	3,592	97,815	16,193	.....	5,300	10,893	18,628
Cleveland, Cincinnati, Chic. & St. Louis	2,012[9]	1,567,422	567,297	2,346,916	355,686	411,089	61,981	1,016,140	56,913	1,901,809	445,107	—3,963	95,000	346,144	—13,205
Colorado & Southern	1,075[10]	500,723	83,324	628,005	91,311	129,145	10,652	197,998	21,790	450,896	177,109	—1,754	28,220	147,135	—3,211
Denver & Rio Grande	2,545[11]	1,379,157	373,112	1,837,732	290,852	372,674	50,246	666,126	50,277	1,430,175	407,557	—3,221	75,000	329,336	—139,004
Denver, Northwestern & Pacific	215	68,392	13,431	84,665	16,540	16,699	5,901	32,535	5,496	77,171	7,494	.....	3,500	3,994	907
Detroit, Toledo & Ironton	441	97,983	10,780	118,269	27,455	10,903	2,609	70,205	5,254	116,426	1,843	—10	5,000	—3,167	—10,601
Duluth, Missabe & Northern	342[12]	156,288	37,629	200,125	60,916	55,815	1,734	71,076	11,791	201,332	—1,207	—3,037	8,058	—12,302	—18,162
Duluth, South Shore & Atlantic	624[13]	168,817	69,208	249,635	49,145	30,138	11,307	97,585	7,284	195,459	54,176	—1,822	18,000	34,354	—5,452
Erie	1,995	2,207,360	681,964	3,186,050	383,565	635,542	97,607	1,346,409	88,058	2,551,181	634,869	—10,532	90,284	534,053	—637,304
Florida East Coast	630[14]	231,378	201,766	508,112	60,128	56,090	5,914	163,798	10,438	296,368	211,744	—700	15,500	195,544	—115,211
Galveston, Harrisburg & San Antonio	1,338	570,476	249,948	874,335	125,566	211,193	31,211	411,553	30,668	810,191	64,144	—5,314	34,322	24,508	—163,992
Georgia	307	179,814	70,980	268,652	28,513	48,305	13,494	134,293	8,126	232,731	35,921	.....	2,965	32,956	—12,921
Hocking Valley	353[15]	251,909	64,910	349,455	46,360	74,958	8,215	154,069	16,350	299,952	49,503	.....	28,600	20,843	—116,284
Houston, East & West Texas	191	67,662	22,405	96,069	18,010	14,625	2,265	36,579	4,286	75,765	20,304	.....	4,011	16,293	—14,034
Houston & Texas Central	789	249,343	113,212	395,154	72,019	84,710	18,416	204,087	19,077	398,309	—3,155	—1,593	19,382	—24,130	—70,982
Indiana Harbor Belt	105[16]	.....	.....	229,253	23,264	23,553	1,551	105,317	6,103	159,788	69,465	1,700	5,460	65,705	13,464
International & Great Northern	1,160	510,375	164,664	733,760	118,880	112,776	25,827	365,201	31,600	654,284	79,476	—409	20,000	59,067	.....
Kanawha & Michigan	17[17]	148,923	27,903	183,038	38,072	53,884	1,924	58,369	6,384	158,633	24,405	3	8,161	16,247	—47,932
Lake Erie & Western	886	329,902	60,889	414,989	71,705	84,517	11,328	181,120	11,088	359,758	55,231	.....	19,000	36,231	18,501
Lake Shore & Michigan Southern	1,775[18]	2,716,342	849,976	4,044,474	472,467	758,538	65,822	1,459,620	90,215	2,846,662	1,197,812	—5,240	140,000	1,052,572	288,701
Louisiana Ry. & Navigation	351	100,495	18,808	129,463	30,344	13,420	5,715	55,674	6,499	111,652	17,811	.....	5,000	12,811	—16,943
Michigan Central	1,817[19]	1,810,347	616,212	2,679,099	268,635	377,594	58,485	1,110,934	52,284	1,867,932	811,167	953	116,000	696,120	291,224
Missouri, Kansas & Texas	1,744[20]	837,869	304,185	1,239,687	174,107	210,742	37,933	434,487	41,890	899,159	340,528	6,709	62,028	285,209	—48,126
Missouri, Kansas & Texas of Texas	1,346[21]	385,018	246,697	691,042	96,838	85,571	24,607	446,246	34,294	687,556	3,486	—3,059	22,000	—21,573	16,212
Missouri Pacific	3,918[22]	1,457,637	360,153	1,984,035	250,068	268,544	60,186	894,177	67,684	1,540,659	443,376	—5,310	98,600	339,466	175,942
Mobile & Ohio	1,114	503,725	101,445	656,452	115,433	103,945	36,177	300,321	32,271	588,147	68,305	—1,136	26,990	40,179	—182,752
Minneapolis, St. Paul & S. S. Marie	3,770[23]	1,751,653	443,518	2,341,950	228,303	275,259	48,331	757,373	49,599	1,358,865	983,085	—2,928	130,756	849,401	563,029
Nashville, Chattanooga & St. Louis	1,230[24]	778,512	220,152	1,073,713	154,350	202,705	35,415	389,123	29,960	811,553	262,160	—1,084	27,794	233,282	5,374
New Orleans, Texas & Mexico	277[25]	96,738	14,687	121,243	22,631	16,313	3,306	57,063	1,143	100,456	20,787	.....	.....	20,787	—7,317
New York, Ontario & Western	566[26]	232,626	95,181	355,773	96,071	113,613	13,515	207,204	16,031	446,434	—90,661	—6,120	17,916	—114,697	—271,818
New York, Susquehanna & Western	152	92,041	45,498	165,704	10,518	19,280	1,559	84,952	3,940	120,249	45,455	—5,846	17,874	21,735	—101,532
Northwestern Pacific	402[27]	94,813	138,642	252,866	54,172	39,647	3,588	99,950	9,470	206,827	46,039	.....	11,077	34,962	—1,852
Pecos & Northern Texas	479[28]	162,041	41,530	215,396	22,489	43,428	2,797	76,670	7,399	152,783	62,613	.....	6,209	56,404	34,204
Peoria & Eastern	352	153,473	51,676	222,377	34,251	36,358	4,100	103,811	5,994	184,514	37,863	.....	9,800	28,063	25,654
Philadelphia & Reading	1,015[29]	2,171,151	546,015	2,890,484	329,067	611,924	39,237	1,170,130	68,856	2,219,214	671,270	25,847	89,654	607,463	—862,661
Pittsburgh & Lake Erie	215	909,859	120,335	1,071,258	143,577	176,893	13,131	310,126	23,850	667,577	403,681	—1,130	31,000	371,551	—121,064
Port Reading	21	70,814	.....	73,577	8,798	177	30	29,730	81	38,816	34,761	4,575	3,800	35,536	—43,526
Richmond, Fredericksburg & Potomac	83	131,834	88,215	245,183	43,351	28,915	2,987	80,618	6,002	161,873	83,310	.....	1,094	82,216	—18,964
St. Louis & San Francisco	4,742[30]	1,836,529	657,781	2,728,890	357,286	300,541	70,208	1,140,238	87,750	1,956,023	772,867	.....	158,712	614,155	—156,249
St. Louis, Brownsville & Mexico	510[31]	180,213	54,388	250,419	20,097	16,428	2,140	81,285	7,936	127,886	122,533	.....	5,150	117,383	64,285
St. Louis, Iron Mountain & Southern	3,315[32]	1,562,556	435,607	2,173,136	272,979	260,147	52,042	807,025	63,531	1,455,724	717,412	—7,502	118,315	591,595	—30,391
St. Louis Southwestern	912[33]	409,416	81,843	567,772	83,317	113,547	33,695	164,354	17,520	421,021	146,751	—858	46,426	99,467	—43,400
St. Louis Southwestern of Texas	703	185,833	60,678	270,059	79,499	90,008	26,108	142,063	19,757	342,563	—72,504	—515	10,945	—83,964	26,704
San Pedro, Los Angeles & Salt Lakes	1,116[34]	502,188	242,719	791,323	76,134	183,655	13,473	283,087	19,757	593,365	197,958	—4,613	24,103	169,242	52,876
Seaboard Air Line	3,070[35]	1,469,019	410,137	2,110,202	276,964	296,756	30,732	760,014	53,112	1,444,858	665,344	—3,633	80,000	581,711	28,307
Southern in Mississippi	281	35,550	17,381	57,525	28,001	8,605	2,133	34,072	4,454	77,265	—19,740	.....	4,218	—23,958	—12,281
Southern Kansas of Texas	125	138,507	17,759	160,573	8,887	27,904	1,820	50,568	3,648	92,827	67,746	—20,735	2,572	65,174	10,724
Southern Pacific Co	6,281[36]	4,248,855	2,550,465	7,336,935	727,390	917,705	215,724	2,099,181	186,242	4,146,242	3,190,693	.....	385,665	2,784,293	227,495
Sunset Railway	59	47,684	14,049	64,672	13,327	1,407	41	23,014	1,748	39,537	25,135	.....	3,390	21,745	.....
Tennessee Central	294	91,015	30,917	130,814	28,672	18,383	5,511	44,318	7,134	104,018	26,796	.....	4,211	22,585	—13,403

[1] 355; [2] 7,550; [3] 4,434; [4] 2,243; [5] 2,232; [6] 341; [7] 2,005; [8] 246; [9] 1,979; [10] 1,173; [11] 2,556; [12] 317; [13] 612; [14] 583; [15] 350; [16] 113; [17] 176; [18] 1,663; [19] 1,805; [20] 1,737; [21] 1,348; [22] 3,921; period—[28] 296; [29] 1,022; [30] 4,732; [31] 501; [32] 3,313; [33] 797; [34] 1,105; [35] 3,046; [36] 6,187. — Indicates Deficits, Losses and Decreases.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF APRIL, 1912—(CONTINUED).

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total. inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	General.	Total.					
Texas & New Orleans	458	$190,870	$78,973	$289,815	$44,249	$65,631	$7,691	$123,794	$11,475	$252,840	$36,975	—$837	$12,487	$23,651	$11,843
Texas & Pacific	1,885	881,354	309,360	1,274,560	202,889	253,425	33,799	654,391	50,574	1,195,078	79,482	1,342	48,066	32,758	—6,659
Toledo & Ohio Central	441[87]	186,383	44,634	247,146	69,200	64,750	5,469	133,964	8,404	281,787	—34,641	—606	20,385	—55,632	—82,987
Toledo, Peoria & Western	248	49,642	33,791	89,168	15,747	24,959	7,307	38,057	3,280	84,350	4,818	.....	5,000	—182	—6,114
Ulster & Delaware	129	47,626	16,493	68,370	8,867	12,181	1,278	28,502	2,362	53,190	15,180	44	3,300	11,924	—12,227
Vicksburg, Shreveport & Pacific	171	56,691	24,754	94,517	32,095	20,587	3,249	34,831	4,785	95,547	—1,030	—134	6,300	—7,464	—10,994
Virginia & Southwestern	240	125,466	11,180	139,658	18,306	29,924	1,864	38,979	4,135	93,208	46,450	.....	5,331	41,119	22,419
Virginian	475[38]	381,199	20,378	415,400	69,416	74,842	5,144	111,932	8,392	269,726	145,674	• 4,189	17,600	132,263	18,553
Wabash	2,515	1,372,224	512,580	2,071,120	467,516	468,294	82,492	1,028,031	66,689	2,113,022	—41,902	—3,852	71,655	—117,409	—441,795
Washington Southern	36	37,705	44,321	109,378	17,773	13,820	1,351	38,638	2,853	74,435	34,943	.....	3,245	31,698	—11,981
Western Pacific	935	326,217	97,729	443,843	74,256	35,711	31,246	172,537	24,346	338,096	105,747	—2,666	15,958	87,123	.....
Western Ry. of Alabama	133	58,864	38,737	107,531	20,430	21,148	5,404	38,426	7,150	92,558	14,973	—64	4,613	10,296	7,156
Wheeling & Lake Erie	457	299,836	45,246	380,003	53,902	120,451	7,338	168,995	14,177	364,863	15,140	3,695	29,609	—10,774	—136,836
TEN MONTHS OF FISCAL YEAR, 1912.															
Alabama & Vicksburg	143	$876,027	$406,184	$1,381,138	$204,599	$276,097	$37,605	$491,859	$51,148	$1,061,308	$319,830	—$8,196	$47,296	$264,338	—$124,025
Alabama Great Southern	309	2,684,279	971,043	3,985,012	462,071	867,231	113,150	1,246,337	98,042	2,786,831	1,198,181	—5,174	147,129	1,045,878	142,117
Ann Arbor	292	1,232,739	452,212	1,793,999	190,530	200,218	42,769	666,350	77,209	1,177,076	616,923	—2,794	139,855	474,274	80,123
Arizona Eastern	366[1]	1,238,765	338,386	1,671,555	239,291	129,075	23,156	444,020	65,809	901,351	770,204	1,865	102,509	669,560	258,413
Atchison, Topeka & Santa Fe	8,201[2]	48,892,617	19,242,658	74,453,602	11,195,467	11,528,399	1,649,810	22,385,370	1,583,987	48,343,033	26,110,569	.....	2,998,004	23,112,565	—1,876,981
Atlanta & West Point	93	577,700	398,292	1,075,244	122,890	205,517	48,012	330,185	46,787	753,391	321,853	858	51,891	270,820	—13,755
Atlantic City	167	660,533	970,477	1,717,817	269,071	157,325	23,319	861,398	12,368	1,303,481	414,336	—42,253	70,000	302,083	60,836
Baltimore & Ohio—System	4,433[3]	59,405,512	12,205,540	76,026,494	8,961,583	13,905,037	1,612,069	27,205,551	1,655,347	53,339,587	22,686,907	—544,938	2,455,594	19,686,375	1,430,581
Belt Ry. Co. of Chicago	21	.....	.....	2,221,699	137,620	254,764	5,776	882,179	53,436	1,333,775	887,924	.....	70,059	817,865	57,248
Boston & Maine	2,245[4]	22,237,735	13,101,794	38,159,392	4,919,260	5,406,612	380,775	17,892,140	852,600	29,451,387	8,708,005	160,052	1,742,162	7,125,895	534,549
Central of Georgia	1,915	7,763,999	3,144,528	11,987,280	1,497,101	2,115,287	340,794	4,077,049	383,789	8,414,020	3,573,260	55,953	509,156	3,120,057	17,073
Central Vermont	411	2,243,846	886,243	3,397,631	336,106	552,874	74,247	1,667,692	89,906	2,720,825	676,806	3,828	121,100	559,534	—57,135
Chesapeake & Ohio Lines	2,288[5]	22,826,346	4,546,305	28,569,610	3,273,822	5,739,930	508,793	8,758,565	639,114	18,920,244	9,649,366	3,051	847,567	8,804,850	559,996
Chicago & Erie	270	3,383,129	572,609	4,367,626	574,844	846,598	208,203	2,206,126	106,155	3,941,926	425,700	.....	146,788	278,912	—326,678
Chicago, Indiana & Southern	359[6]	2,982,203	248,901	3,360,452	460,966	782,139	76,214	1,245,230	85,459	2,650,008	710,444	2,366	127,098	585,712	174,652
Chicago, Indianapolis & Louisville	617	3,571,059	1,361,010	5,431,650	749,879	801,546	176,123	2,055,489	144,584	3,927,621	1,504,029	.....	232,381	1,271,648	—93,803
Chicago, Milwaukee & Puget Sound	2,059[7]	10,656,233	2,126,924	13,231,066	959,635	1,505,629	473,968	4,821,812	214,615	7,975,659	5,255,407	85,618	901,678	4,439,347	—350,962
Chicago, Milwaukee & St. Paul	7,511	35,983,456	11,544,941	52,859,122	6,880,822	8,128,352	1,070,279	22,769,042	961,813	39,810,308	13,048,814	—183	2,404,044	10,644,587	—1,678,851
Chicago, Terre Haute & Southeastern	351	1,393,117	172,469	1,602,858	220,253	265,380	29,498	507,218	74,109	1,096,458	506,400	—1,480	8,700	417,920	.....
Cincinnati, New Orleans & Texas Pacific	337	6,130,389	1,485,532	8,027,705	806,772	1,783,707	202,417	2,344,448	189,213	5,326,557	2,701,148	—5,510	218,000	2,477,638	79,439
Cincinnati Northern	245[8]	898,452	180,636	1,130,792	205,226	236,071	27,069	479,809	31,563	979,738	151,054	.....	56,291	94,763	—39,109
Cleveland, Cincinnati, Chic. & St. Louis	2,012[9]	17,189,131	6,377,553	25,742,006	2,847,034	4,228,427	736,367	10,467,964	544,822	18,824,614	6,917,392	—29,739	962,512	5,925,141	1,364,258
Colorado & Southern	1,075[10]	5,327,324	1,131,430	6,933,116	799,464	1,354,307	115,685	2,231,118	227,689	4,728,263	2,204,853	—12,179	268,521	1,924,153	—375,199
Denver & Rio Grande	2,545[11]	14,520,213	4,091,431	19,466,830	2,615,752	3,603,303	530,493	6,977,193	504,330	14,231,071	5,235,759	—20,655	751,000	4,464,104	—952,627
Denver, Northwestern & Pacific	215	722,526	248,137	1,015,346	145,864	164,658	26,781	369,061	36,265	742,629	272,717	.....	33,000	239,917	7,939
Detroit, Toledo & Ironton	441	1,265,100	136,927	1,507,474	291,744	178,708	27,364	744,658	54,140	1,296,614	210,860	—44	58,584	152,232	111,559
Duluth, Missabe & Northern	342[12]	4,830,031	368,223	5,276,610	845,344	611,914	18,327	1,054,243	132,099	2,661,927	2,614,683	30,544	252,276	2,392,951	—1,945,587
Duluth, South Shore & Atlantic	624[13]	1,671,406	771,454	2,575,744	403,941	297,158	95,579	1,011,844	93,769	1,902,291	673,453	2,180	177,666	497,967	—70,638
Erie	1,995	30,053,658	7,404,704	40,573,582	4,449,262	7,084,022	942,159	14,242,918	894,334	27,612,695	12,960,887	—167,309	1,480,907	11,312,671	—1,094,295
Florida East Coast	630[14]	1,645,617	1,521,952	3,637,068	555,245	481,310	73,874	1,323,391	99,574	2,533,394	1,103,674	—2,781	155,000	945,893	—327,496
Galveston, Harrisburg & San Antonio	1,338	6,066,302	2,472,035	9,026,452	1,118,301	1,666,809	331,590	3,587,420	280,768	6,984,888	2,041,564	—50,996	382,736	1,607,832	—726,526
Georgia	307	1,959,181	770,955	2,912,633	254,937	437,919	114,694	1,266,139	79,930	2,153,619	759,014	.....	27,013	732,001	42,134
Hocking Valley	353[15]	4,898,420	733,890	5,984,636	704,416	960,255	83,109	1,872,241	159,872	3,779,893	2,204,743	.....	358,479	1,846,264	70,315
Houston, East & West Texas	191	743,176	269,145	1,072,649	192,146	116,152	20,177	367,558	37,670	733,703	338,946	.....	42,566	296,380	—78,469
Houston & Texas Central	789	3,147,037	1,458,133	4,979,220	720,193	845,403	190,247	2,136,490	204,150	4,096,483	882,737	—13,735	220,749	648,253	—576,133
Indiana Harbor Belt	105[16]	.....	.....	2,195,651	249,299	242,457	27,756	997,130	73,661	1,590,303	605,348	25,060	43,897	586,511	303,723
International & Great Northern‡	1,160	5,174,580	1,398,054	7,018,607	774,641	834,190	175,992	2,794,463	235,039	4,814,325	2,204,282	—3,012	212,500	1,988,770	.....
Kanawha & Michigan	177[17]	2,211,475	287,313	2,552,363	315,361	460,050	22,030	771,964	66,238	1,635,643	916,720	—0	87,705	829,015	—124,903
Lake Erie & Western	886	3,653,216	754,102	4,667,115	662,213	824,584	123,792	1,865,042	109,948	3,585,579	1,081,536	.....	195,296	886,240	179,322
Lake Shore & Michigan Southern	1,775[18]	27,572,028	9,597,102	42,083,375	4,431,099	5,932,976	826,646	14,027,999	775,943	25,994,663	16,088,712	—23,519	1,423,939	14,641,254	5,239,199
Louisiana Ry. & Navigation	351	1,216,673	227,726	1,556,523	251,679	144,634	60,764	616,883	66,504	1,140,464	416,059	.....	48,200	367,859	97,136
Michigan Central	1,817[19]	17,133,157	6,533,092	26,203,845	2,862,137	3,168,082	642,220	10,308,915	454,764	17,436,118	8,767,727	27,145	1,146,371	7,648,501	2,985,826
Missouri, Kansas & Texas	1,744[20]	9,377,514	3,591,342	13,829,782	1,716,289	2,044,565	357,743	4,601,690	415,361	9,135,648	4,694,134	—13,136	562,954	4,118,044	—222,478
Missouri, Kansas & Texas of Texas	1,346[21]	5,693,293	3,078,653	9,368,217	1,911,950	976,767	247,096	4,977,170	305,905	8,418,888	949,329	—11,131	265,974	672,224	—1,226,907
Missouri Pacific	3,918[22]	14,679,008	3,866,358	20,386,273	3,436,766	3,623,514	593,663	9,507,970	710,290	17,872,203	2,514,070	—37,391	882,794	1,593,885	—26,329
Mobile & Ohio	1,114	7,534,909	1,198,930	9,306,404	1,106,522	1,707,735	342,961	3,386,431	318,877	6,862,526	2,443,878	—9,700	256,390	2,177,788	—273,307
Minneapolis, St. Paul & S. S. Marie	3,770[23]	15,877,034	4,712,829	21,846,340	2,065,351	2,772,454	454,767	7,241,835	456,990	12,991,397	8,854,943	76,839	1,314,105	7,617,677	2,689,514
Nashville, Chattanooga & St. Louis	1,230[24]	7,011,317	2,442,406	10,161,867	1,497,276	1,880,025	381,924	3,749,998	261,941	7,771,164	2,390,703	—9,457	250,094	2,131,152	—211,065
New Orleans, Texas & Mexico	277[25]	1,021,015	185,308	1,285,974	255,170	153,615	38,416	569,273	68,148	1,084,622	201,352	.....	3,473	197,879	37,943
New York, Ontario & Western	566[26]	5,602,170	1,375,829	7,265,135	1,058,995	1,278,212	101,649	2,899,292	170,321	5,508,469	1,756,666	—16,318	179,167	1,561,181	—437,409
New York, Susquehanna & Western	152	1,655,464	489,457	2,422,698	222,236	230,141	18,846	962,972	50,048	1,484,243	938,455	—10,425	178,736	749,294	—155,335
Northwestern Pacific	402[27]	1,135,707	1,518,745	2,870,724	499,658	401,154	33,253	1,056,871	96,361	2,087,297	783,427	.....	119,519	663,908	110,246
Pecos & Northern Texas	479[28]	1,294,095	334,161	1,712,981	225,110	347,675	26,194	600,819	56,996	1,256,794	456,187	.....	47,564	408,623	79,134
Peoria & Eastern	352	1,878,201	589,010	2,657,965	346,199	384,739	50,842	1,114,772	57,493	1,954,045	703,920	.....	97,403	606,517	13,051
Philadelphia & Reading	1,015[29]	29,981,387	5,748,234	37,399,361	3,230,317	6,897,462	409,096	12,353,799	665,408	23,556,082	13,843,279	275,773	900,344	13,218,708	59,237

‡ Figures shown here are for period September 16, 1911, to April 30, 1912.

Operated in previous period—[37] 444; [38] 474; [1] 355; [2] 7,550; [3] 4,434; [4] 2,243; [5] 2,232; [6] 341; [7] 2,005; [8] 246; [9] 1,979; [10] 1,173; [11] 2,556; [12] 317; [13] 612; [14] 583; [15] 350; [16] 113; [17] 176; [18] 1,663; [19] 1,805; [20] 1,737; [21] 1,348; [22] 3,921; [23] 3,764; [24] 1,255; [25] 264; [26] 546; [27] 376; [28] 296; [29] 1,022. — Indicates Deficits, Losses and Decreases.

REVENUES AND EXPENSES OF RAILWAYS.

TEN MONTHS OF FISCAL YEAR, 1912—(CONTINUED).

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Pittsburgh & Lake Erie	215	$11,660,582	$1,272,318	$13,344,022	$1,453,242	$2,116,386	$128,534	$3,244,432	$237,240	$7,179,834	$6,164,188	—$3,667	$301,389	$5,859,132	—$544,536
Port Reading	21	1,096,694	.....	1,110,523	80,706	1,636	308	347,372	1,074	431,096	679,427	45,137	38,000	686,564	—31,648
Richmond, Fredericksburg & Potomac	83	1,010,621	798,017	2,057,589	234,756	257,463	28,754	769,345	59,038	1,349,356	708,233	.....	10,940	697,293	—2,298
St. Louis & San Francisco	4,742[30]	21,612,362	9,148,816	33,222,969	3,928,068	4,285,635	885,990	12,122,502	984,338	22,206,533	11,016,436	.....	1,595,538	9,420,898	—374,882
St. Louis, Brownsville & Mexico	510[31]	1,232,926	591,910	1,976,801	389,455	140,515	32,780	695,340	74,678	1,332,768	644,033	.....	54,234	589,799	280,151
St. Louis, Iron Mountain & Southern	3,315[32]	18,390,102	5,091,800	25,220,340	3,911,858	3,464,726	535,842	8,350,191	710,484	16,973,101	8,247,239	—55,770	919,630	7,271,839	544,726
St. Louis Southwestern	912[33]	4,952,926	1,097,108	6,425,663	609,571	1,071,729	282,570	1,619,211	254,417	3,837,498	2,588,165	—9,367	237,339	2,341,459	—161,836
St. Louis Southwestern of Texas	703	2,597,650	842,469	3,692,209	578,812	828,111	123,806	1,506,001	175,317	3,212,047	480,162	—2,832	106,497	370,833	385,658
San Pedro, Los Angeles & Salt Lakes	1,116[34]	4,425,217	2,451,056	7,349,199	1,114,132	1,709,846	316,820	2,828,561	173,315	6,142,474	1,206,725	—38,798	245,865	922,062	—103,469
Seaboard Air Line	3,070[35]	12,978,008	4,296,532	19,255,349	2,757,459	2,707,705	599,829	6,961,221	572,715	13,598,929	5,656,420	—16,965	757,000	4,882,455	—589,021
Southern in Mississippi	281	571,888	309,581	951,093	233,358	90,520	23,755	382,126	40,429	770,188	180,905	.....	47,848	133,057	—48,729
Southern Kansas of Texas	125	938,541	160,383	1,149,064	157,420	241,128	20,481	429,272	40,405	888,706	260,358	.....	26,044	234,314	—74,913
Southern Pacific Co	6,281[36]	44,396,080	26,039,014	75,663,361	8,428,758	9,339,321	1,798,167	21,920,660	1,948,039	43,434,945	32,228,416	181,586	3,416,939	28,993,063	—617,636
Sunset Railway†	59	55,720	19,159	78,741	15,920	1,652	46	29,132	2,205	48,955	29,786	.....	4,592	25,194	.....
Tennessee Central	294	864,008	324,773	1,265,262	234,924	178,665	53,540	473,023	80,773	1,020,925	244,337	.....	42,091	202,246	—179,884
Texas & New Orleans	458	2,132,157	852,184	3,181,956	522,917	720,703	81,789	1,296,545	105,799	2,727,753	454,203	—4,080	144,246	305,877	—208,737
Texas & Pacific	1,885	10,252,954	3,488,854	14,649,600	1,659,809	2,082,406	306,112	6,377,217	459,921	10,885,465	3,764,135	—32,051	618,447	3,113,637	376,906
Toledo & Ohio Central	441[37]	3,594,209	531,992	4,320,393	681,280	661,761	65,260	1,544,543	83,131	3,035,975	1,284,418	—8,230	205,272	1,070,916	—93,810
Toledo, Peoria & Western	248	639,675	373,657	1,074,017	165,340	241,796	23,196	412,606	33,962	876,900	197,117	.....	48,600	148,517	—13,758
Ulster & Delaware	129	525,521	302,905	871,742	118,363	115,386	13,861	361,674	24,940	634,224	237,518	784	33,000	205,302	—12,225
Vicksburg, Shreveport & Pacific	171	704,451	393,215	1,209,660	228,887	216,761	32,014	385,536	46,814	910,012	299,648	—1,644	67,971	230,033	—80,921
Virginia & Southwestern	240	1,277,418	134,937	1,446,962	174,156	294,726	18,324	420,483	38,110	945,799	501,163	.....	49,586	451,577	146,148
Virginian	475[38]	3,656,111	216,982	3,985,488	503,052	719,361	50,542	1,103,650	79,506	2,456,111	1,529,377	51,074	159,000	1,421,451	343,239
Wabash	2,515	15,931,173	5,813,472	23,646,100	2,924,702	4,296,263	780,908	10,060,157	722,792	18,784,822	4,861,278	—22,733	708,318	4,130,227	—1,650,931
Washington Southern	36	327,292	392,204	957,250	120,584	105,847	12,452	370,091	27,467	636,441	320,809	.....	32,449	288,360	—32,106
Western Pacific	935	3,292,764	905,386	4,340,422	808,651	402,664	281,270	1,815,292	232,341	3,540,218	800,204	—33,571	151,377	615,256	.....
Western Ry. of Alabama	133	682,682	413,845	1,191,555	193,657	220,356	53,722	343,296	61,530	872,561	318,994	62	46,124	272,932	37,464
Wheeling & Lake Erie	457	5,303,683	508,182	6,196,445	721,481	1,168,086	78,877	2,071,646	140,497	4,175,587	2,020,858	24,244	300,785	1,744,317	305,426

† Figures shown here are for period March 21 to April 30, 1912, inclusive.
Operated in previous period—[30] 4,732; [31] 501; [32] 3,313; [33] 797; [34] 1,105; [35] 3,046; [36] 6,187; [37] 444; [38] 474. — Indicates Deficits, Losses and Decreases.

TEN MONTHS OF FISCAL YEAR, 1912—(CONTINUED FROM LAST WEEK).

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Norfolk Southern	608	$1,782,303	$691,622	$2,680,688	$311,542	$321,450	$54,737	$877,377	$132,171	$1,697,277	$983,411	—$4,667	$75,000	$903,744	$23,862
Northern Central	473[26]	8,003,109	1,907,768	10,544,392	1,172,025	2,262,410	148,682	5,312,436	246,914	9,142,467	1,401,925	4,569	386,720	1,019,774	—96,483
Northern Pacific	6,032[27]	36,621,406	12,693,401	52,781,962	6,133,532	5,957,362	980,212	17,431,353	835,287	31,337,746	21,444,216	274,322	2,800,309	18,918,229	—314,023
Oregon Short Line	1,762[28]	12,424,906	3,808,779	17,302,746	1,977,215	1,672,739	281,622	4,272,659	356,187	8,560,422	8,742,324	—7,318	1,062,690	7,672,316	376,533
Oregon-Washington R. R. & Nav. Co	1,920[29]	8,572,202	4,092,887	13,623,635	1,782,173	1,448,873	441,649	4,880,156	446,787	8,999,638	4,623,997	4,563	999,141	3,629,419	2,394,920
Pennsylvania *Co.*	1,760[30]	32,791,802	7,288,553	43,942,925	6,053,602	8,125,335	761,155	15,845,862	885,467	31,671,421	12,271,504	—24,264	1,953,687	10,293,553	—932,596
Pennsylvania *Railroad*	4,018[31]	98,627,772	28,321,604	135,932,836	15,345,179	27,214,324	1,860,394	50,559,708	3,446,443	98,426,048	37,506,788	—1,253,367	5,893,477	30,359,944	—389,799
Pere Marquette	2,330[32]	9,420,535	3,399,633	13,978,727	1,714,221	2,347,598	350,058	6,571,499	333,101	11,316,477	2,662,250	—48,572	562,324	2,051,354	35,094
Philadelphia, Baltimore & Washington	713	7,726,013	6,510,046	15,875,549	2,196,365	2,730,094	278,958	6,722,032	392,581	12,320,030	3,555,519	.....	501,258	3,054,261	—53,062
Pittsburgh, Cincinnati, Chic. & St. Louis	1,467[32]	23,521,519	6,624,861	33,829,209	4,400,724	6,325,201	677,117	12,369,316	667,617	24,439,975	9,389,234	—8,552	1,264,847	8,115,835	548,388
Pittsburgh, Shawmut & Northern	278[33]	1,114,831	86,596	1,221,010	141,099	255,599	10,936	370,202	40,834	818,670	402,340	.....	15,739	386,601	190,776
Rutland	468	1,536,889	986,137	2,853,977	335,126	464,716	72,662	1,144,014	65,434	2,081,953	772,024	.....	113,080	658,944	30,962
St. Joseph & Grand Island	319	857,179	340,197	1,317,114	221,381	228,558	49,439	591,672	55,501	1,146,551	170,563	1,054	68,067	103,550	—15,126
St. Louis Merchants' Bridge Terminal	9	.....	3,188	1,467,890	235,041	87,064	4,513	810,991	51,669	1,189,278	278,612	.....	57,732	220,880	—78,289
St. Louis, San Francisco & Texas	244	770,818	270,208	1,110,069	183,761	150,814	30,134	505,407	49,248	919,364	190,705	.....	10,756	179,949	—189,701
San Antonio & Aransas Pass	727	2,658,574	989,574	3,864,947	651,432	474,724	57,777	1,448,420	99,877	2,732,230	1,132,717	.....	111,000	1,021,717	246,132
Southern	7,090[74]	35,098,469	14,134,306	53,493,345	6,487,069	8,479,644	1,402,798	18,515,882	1,583,355	36,468,748	17,024,597	68,802	2,039,127	15,054,272	311,418
Syracuse, Binghamton & New York	81	518,162	335,188	969,340	118,199	77,113	27,888	367,323	23,642	614,165	355,175	.....	64,600	290,575	—36,016
Terminal R. R. Ass'n of St. Louis	35[35]	.....	2,460	2,283,356	352,510	236,130	7,064	860,878	56,300	1,512,882	770,474	91,199	273,010	588,663	—104,053
Toledo, St. Louis & Western	451	2,697,047	354,072	3,256,666	357,659	567,690	82,247	1,198,925	85,489	2,292,010	964,656	.....	149,500	815,156	—32,867
Trinity & Brazos Valley	463	1,845,951	368,102	2,290,590	413,863	287,200	96,163	1,053,135	113,560	1,963,921	326,669	.....	42,838	283,831	173,326
Union Pacific	3,537[36]	27,425,246	8,476,002	39,659,991	3,766,277	5,059,037	1,032,693	11,686,454	1,071,925	22,616,386	17,043,605	—28,808	1,683,532	15,331,265	—3,454,816
Union R. R. of Baltimore	9	1,029,001	204,401	1,249,817	97,020	.....	8,087	56,032	25,271	186,410	1,063,407	.....	57,194	1,006,213	—46,980
Union R. R. of Pennsylvania	31	.....	.....	3,390,133	326,095	798,910	1,020	1,282,779	35,549	2,444,353	945,780	34,054	62,823	917,011	359,409
Vandalia	827	5,496,338	2,015,870	8,436,811	1,128,927	1,676,162	252,972	3,395,346	187,709	6,641,116	1,795,695	.....	282,717	1,512,978	—256,569
West Jersey & Seashore	356[37]	1,592,991	3,317,138	5,240,428	811,184	898,135	133,320	2,283,899	113,402	4,239,940	1,000,488	—36,366	260,449	703,673	—280,229
Western Maryland	543	5,001,176	769,233	6,016,431	676,500	755,987	100,322	2,223,120	137,834	3,893,763	2,122,668	—396	210,000	1,912,272	—200,911
Yazoo & Mississippi Valley	1,372	5,560,314	2,103,033	8,281,082	1,598,254	1,241,570	161,533	3,369,170	265,002	6,635,529	1,645,553	—73	376,804	1,268,676	—1,418,916

Operated in previous period—[26] 469; [27] 6,029; [28] 1,646; [29] 1,737; [30] 1,416; [31] 3,977; [32] 2,334; [32] 1,468; [33] 240; [34] 7,039; [35] 34; [36] 3,473; [37] 353. —Indicates Deficits, Losses and Decreases.

REVENUES AND EXPENSES OF EXPRESS COMPANIES AS REPORTED TO THE INTERSTATE COMMERCE COMMISSION.

MONTH OF OCTOBER, 1911.

	Miles of line covered.		Express revenue.	Gross receipts from operation.	Less express privileges. Dr.	Total operating revenues.	Operating expenses.				Net operating revenue (or deficit —).	Taxes.	Operating income (or loss —).	Increase or decr. (—) comp. with last year.
	Steam roads.	Other lines.					Maintenance.	Traffic.	Trans-portation.	General.	Total.			
Adams Express Co.	33,043[1]	4,707	$10,866,668	$10,997,240	$5,567,383	$5,429,857	$285,232	$30,632	$4,241,880	339,112	$4,896,856	$533,001	$78,662	$454,339	—$163,480
American Express Co.	54,660[2]	2,255	13,942,393	14,541,580	6,858,692	7,682,888	212,084	115,096	5,806,155	483,936	6,617,271	1,065,617	123,819	941,798	—84,132
Canadian Express Co.	6,261[3]	830	1,016,368	1,037,439	488,725	548,714	23,746	4,216	379,700	26,344	434,006	114,708	9,000	105,708	—8,381
Canadian Northern Express Co.	3,551[4]	22	177,079	183,289	71,402	111,887	905	1,595	54,817	5,633	62,950	48,937	600	48,337	4,779
Globe Express Co.	2,904[5]	...	299,662	302,078	149,989	152,089	2,499	6,606	101,081	15,626	125,812	26,277	3,200	23,077	—15,523
Great Northern Express Co.	8,497[6]	399	1,016,407	1,021,240	614,572	406,668	7,321	5,594	273,501	15,358	301,774	104,894	14,046	90,848	—15,045
National Express Co.	1,422	218	450,063	451,770	172,416	279,354	3,704	7	197,092	12,121	212,924	66,430	1,939	64,491	—2,650
Northern Express Co.	7,310[7]	315	1,076,630	1,090,008	553,616	536,392	5,823	12,811	319,422	23,829	361,885	174,507	18,000	156,507	—125,419
Pacific Express Co.†	31,879[8]	846	4,395,320	4,481,721	2,134,334	2,347,387	74,497	39,018	1,598,929	221,565	1,934,009	413,378	59,353	354,025	1,452
Southern Express Co.	28,965[9]	3,954	6,988,600	7,098,893	3,254,652	3,844,241	135,060	67,397	3,235,201	184,999	3,622,657	221,584	41,374	180,210	—205,661
United States Express Co.	63,649[10]	17,339	10,142,723	10,327,989	4,875,079	5,452,910	200,184	101,378	3,945,246	310,892	4,557,700	895,210	98,961	796,249	—59,284
Wells, Fargo & Co.	4,892[11]	4	381,081	387,605	200,196	187,409	4,349	11,789	139,883	13,855	169,876	17,533	3,004	14,529	18,687
Western Express Co.			98,058	99,807	50,496	49,311	1,030	2,172	34,269	3,186	40,657	8,654	784	7,870	—242
	FOUR MONTHS OF FISCAL YEAR, 1912.														
Adams Express Co.	33,043[1]	4,707	$10,866,668	$10,997,240	$5,567,383	$5,429,857	$285,232	$30,632	$4,241,880	339,112	$4,896,856	$533,001	$78,662	$454,339	—$163,480
American Express Co.	54,660[2]	2,255	13,942,393	14,541,580	6,858,692	7,682,888	212,084	115,096	5,806,155	483,936	6,617,271	1,065,617	123,819	941,798	—84,132
Canadian Express Co.	6,261[3]	830	1,016,368	1,037,439	488,725	548,714	23,746	4,216	379,700	26,344	434,006	114,708	9,000	105,708	—8,381
Canadian Northern Express Co.	3,551[4]	22	177,079	183,289	71,402	111,887	905	1,595	54,817	5,633	62,950	48,937	600	48,337	4,779
Globe Express Co.	2,904[5]	...	299,662	302,078	149,989	152,089	2,499	6,606	101,081	15,626	125,812	26,277	3,200	23,077	—15,523
Great Northern Express Co.	8,497[6]	399	1,016,407	1,021,240	614,572	406,668	7,321	5,594	273,501	15,358	301,774	104,894	14,046	90,848	—15,045
National Express Co.	1,422	218	450,063	451,770	172,416	279,354	3,704	7	197,092	12,121	212,924	66,430	1,939	64,491	—2,650
Northern Express Co.	7,310[7]	315	1,076,630	1,090,008	553,616	536,392	5,823	12,811	319,422	23,829	361,885	174,507	18,000	156,507	—125,419
Pacific Express Co.†	31,879[8]	846	4,395,320	4,481,721	2,134,334	2,347,387	74,497	39,018	1,598,929	221,565	1,934,009	413,378	59,353	354,025	1,452
Southern Express Co.	28,965[9]	3,954	6,988,600	7,098,893	3,254,652	3,844,241	135,060	67,397	3,235,201	184,999	3,622,657	221,584	41,374	180,210	—205,661
United States Express Co.	63,649[10]	17,339	10,142,723	10,327,989	4,875,079	5,452,910	200,184	101,378	3,945,246	310,892	4,557,700	895,210	98,961	796,249	—59,284
Wells, Fargo & Co.	4,892[11]	4	381,081	387,605	200,196	187,409	4,349	11,789	139,883	13,855	169,876	17,533	3,004	14,529	18,687

†Operations ceased July 31, 1911. Business disbanded.
Operated in previous period: Steam roads—[1] 32,309; [2] 54,898; [3] 6,964; [4] 3,292; [5] 2,837; [6] 7,835; [7] 6,601; [8] 31,595; [9] 28,784; [10] 46,203; [11] 3,506. Other lines—[1] 3,727; [2] 2,659; [6] 381; [7] 261; [8] 816; [9] 3,816; [10] 5,042.

COURT NEWS.

At Baltimore, Md., June 10, P. W. Pitt, a grain broker, charged with forging bills of lading for goods valued at over $200,000, pleaded guilty. Sentence was suspended by the court. Pitt was arrested in Naples, Italy, after a long chase.

The Supreme Court of the United States has adjourned until October. No decisions have been handed down concerning the Union Pacific merger, the suit against the anthracite coal railways, or the suits involving conflicts relative to freight and passenger rates prescribed by state authority and interfering with interstate rates or complained of on that alleged ground.

The Commerce Court has upheld the Interstate Commerce Commission in its order reducing the rate on rough, green, fir lumber from the Willamette valley to San Francisco. The commission had refused to reduce the rate on all other classes of lumber except this cheap grade, which it reduced from $5 per ton to $3.50 per ton. The opinion was by Judge Archbald.

The Commerce Court has dismissed the complaint against the order of the Interstate Commerce Commission, which refused reparation on shipments of coke from West Virginia to Chicago and South Chicago. The court has held that the commission was acting clearly within its powers and that its finding of fact that a rate was reasonable is binding on the court. The opinion was by Judge Carland.

The Commerce Court in the case of the Crane Iron Works v. the Interstate Commerce Commission has upheld the order of the commission refusing the Crane Railroad the right to make joint rates with other railway companies. This is the case in which the commission held that the Crane Railroad was a mere plant facility of the iron works, and was not entitled to a division of freight rate. The court holds that the commission made no error in law, and that its order is therefore binding.

In the Federal Court at Toledo, Ohio, June 11, fines for giving and receiving illegal rebates were imposed by Judge Killetts on the Hocking Valley Railroad Company, $42,000, and on the Sunday Creek Coal Company, $20,000. The contention of the government was that the railway had violated the law relative to rebates when it accepted notes in settlement of freight bills thus virtually giving extended or unlimited credit to the coal company, while other coal companies were required to pay cash. The defendants entered pleas of nolo contendere, making no defense, but probably will appeal.

The Commerce Court has dismissed the complaint against the order of the Interstate Commerce Commission, which order refused to find a rate of $2.10 per ton on coal from the Coal Creek Mines in Tennessee to Augusta, Ga., unreasonable. The present complainants claim that the commission made errors of law, but admit that no one of these errors was sufficient in itself to justify the court in reversing the decision of the commission. The court refuses to amalgamate these alleged errors and to hold that the sum of errors at law, no one of which would justify a reversal, in toto justify a reversal.

Three Reversals of Commerce Court.

The Supreme Court of the United States on Friday, June 7, handed down three decisions overruling the commerce court and reversing its judgment on cases which had come from the Interstate Commerce Commission. In the case of Proctor & Gamble, who had applied to the Interstate Commerce Commission for relief against demurrage charges imposed on private cars and who had been denied any relief by the commission, the commerce court had granted an injunction looking to a reversal of the commission's decision. The commission, backed by the Department of Justice, appealed to the Supreme Court, claiming that the commerce court had no jurisdiction to hear a case in which the commission had denied a petition and had refused to make an order. The opinion of the Supreme Court is by Chief Justice White. He says that the commerce court has no greater power or jurisdiction than that heretofore exercised by the circuit courts.

The Eagle White Lead Company's case involved the same questions as that of Proctor & Gamble, the commission having

refused to grant an order asked for. In both cases the chief justice orders the commerce court to dismiss the suit, for want of jurisdiction. The purpose in establishing the commerce court was to provide for reviewing the action of the Interstate Commerce Commission under proper circumstances; but to sustain the contention of the court in these cases, that it has the power to enjoin a negative order of the commission by assuming that the commission established a new rate, would be to wipe out the entire history of the Interstate Commerce Commisison act and do violence to the very purposes of the act. Such a finding would create disorder and confusion. The important question is whether the commerce court's authority is confined to enforcing or restraining affirmative orders of the commission, or has it the power to exert its own judgment to originally interpret the administrative features of the act, and upon that assumption to treat a refusal of the commission to grant relief as an affirmative order and accordingly pass upon its correctness? These words give the court its authority: "To set aside, annul or suspend any orders of the commission." Giving these words their natural significance we think it follows that they confer jurisdiction only to entertain complaints as to affirmative orders of the commission. If the judgment stands it would result in frustrating the legislative policy which led to the adoption of the act.

In the cases of the Baltimore & Ohio and other roads which had given reduced rates on coal belonging to railway companies and to be used by them, the commission had declared such rates to be an unlawful discrimination; the commerce court on application of the railways enjoined the enforcement of the commission's order. The Supreme Court now reverses this action of the court and sustains the commission.

The Commerce Court has annulled the order of the Interstate Commerce Commission, which enjoins the Louisville & Nashville and the Nashville, Chattanooga & St. Louis from granting re-shipping privileges at Nashville, while refusing to grant them at other points, such as Atlanta, Ga., Columbus, Macon, etc. The court holds that conditions are so substantially different at Nashville from those at the other points that there may properly be a difference in privileges granted to Nashville shippers. The court finds that the especial privileges granted Nashville were compelled by competition, and that there still is potential competition.

A preliminary decree in the case against the St. Louis Terminal Railroad Association in which the Supreme Court recently held that the present organization of the company is in violation of the anti-trust law, was filed in the United States District Court at St. Louis on June 6 by E. C. Crow, special counsel for the government, and the date for hearing arguments on the decree was set for Tuesday, June 11. The proposed decree orders the complete abolition of the so-called bridge arbitrary and provides that St. Louis and East St. Louis be placed in a zone of equal rates. It became evident that the government and the railway cannot agree on a decree, and counsel for the Terminal Association presented preliminary arguments, taking the position that the court has not specifically ordered the abolition of the arbitrary, but that the question of rates may be passed upon by the Interstate Commerce Commission. They also announced their intention of asking that Judge Dyer be disqualified from hearing the case because he appeared as counsel of record for the government when the case was first tried in the circuit court.

The Turkish government has consented to the construction of a line from Uskub via Kalkandele to Gastivar, about 39 miles, by the Oriental Railway Company.

A line is proposed from Barnoldswick, England, to Gisburn. It is estimated that this line will cost $300,000. It is proposed to connect this line with the Lancashire & Yorkshire outside Gisburn.

The North Eastern Railway, England, has two new gasolene motor cars to be used in inspections. The new cars are stationed at Newcastle and at York. They are 23 ft. 6 in. long, and 8 ft. 6 in. wide.

French railways are again buying coal from British collieries. Orders had been sent elsewhere recently, owing to the coal strike. The Paris, Lyons & Mediterranean has ordered 8,000 tons of Welsh coal, to be delivered at Marseilles.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

John Bell, secretary of the Central of Georgia, has resigned. Effective June 30.

R. E. Anderson has been appointed auditor and cashier of the Georgia Coast & Piedmont, with office at Darien, Ga., succeeding F. S. L. Grundy.

L. W. Hill, until recently president of the Great Northern, has been elected chairman of the board, succeeding James J. Hill, resigned. Effective July 1.

Joseph Ramsey has been elected president of the Wheeling & Lake Erie, and G. P. Rust, of Cleveland, and R. E. Slaven, of New York, vice-presidents. See Railway Financial News.

H. Ernest, formerly auditor of freight receipts of the Chicago Great Western, at Chicago, has been appointed chief of the bureau of agency accounts of the Wells, Fargo & Company Express, with office at Chicago.

L. S. Storrs has been appointed a vice-president of the New York, New Haven & Hartford, with such duties as may be especially assigned to him by the president, with office at New Haven, Conn. Mr. Storrs' especial assignment is to relieve the president in connection with six street railways and power systems controlled by the company in Massachusetts, Rhode Island and Connecticut.

J. J. Turner, second vice-president of the Pennsylvania Lines West, has been elected also president of the Lake Erie & Pittsburg, and W. C. Brown, president of the New York Central Lines, has been elected also vice-president of the Lake Erie & Pittsburgh, a new joint line extending from the Cleveland Short Line near Cleveland, Ohio, south to a connection with the Baltimore & Ohio, 40 miles.

A. Hermany, auditor of passenger traffic of the Chicago, Rock Island & Pacific and the St. Paul & Kansas City Short Line at Chicago, has been appointed auditor of disbursements, with office at Chicago, succeeding L. K. Luff, resigned to accept service with another company. C. G. Weaver, auditor of freight traffic, succeeds Mr. Hermany, and Paul Peters, assistant auditor of freight traffic, succeeds Mr. Weaver.

John W. Nokely, whose appointment as general auditor of the Chesapeake & Ohio lines, with headquarters at Richmond, Va., has been announced in these columns, was born on December 5, 1871, and was educated in the public schools of his native town. He graduated from high school in 1888, and began railway work on January 8, 1891, as statistical clerk in the auditor's office of the Chesapeake & Ohio at Richmond. In May, 1896, he was appointed traveling auditor, and in February, 1907, was made special accountant of the same company. From June 1, 1909, to November of the same year he was with the Interstate Commerce Commission as an examiner of accounts, and then returned to the Chesapeake & Ohio as special accountant. In December, 1909, he was appointed assistant secretary and assistant treasurer of the same company, at New York, which position he held at the time of his recent appointment as general auditor, with headquarters at Richmond.

Harry G. Clark, whose appointment as assistant to second vice-president of the Chicago, Rock Island & Pacific, with office at Chicago, has been announced in these columns, was born July 8, 1875, at Leavenworth, Kan. He graduated as a civil engineer from the University of Kansas in 1898, and began railway work in September of that year with the Atchison, Topeka & Santa Fe as a chairman on the Kansas lines. Later he went with the Chicago, Burlington & Quincy as rodman on construction and transitman on location in Iowa during double tracking in that state, and in October, 1900, went with the Choctaw, Oklahoma & Gulf, now the Chicago, Rock Island & Pacific, at Little Rock, Ark. He was consecutively resident engineer, division engineer, first of the Western division of the C. O. & G. and then of the Pan Handle and Arkansas divisions of the Chicago, Rock Island & Pacific, and district engineer of the Choctaw district of the Rock Island from September, 1905, to October, 1909. He was train-

master of the Arkansas and Oklahoma divisions from October, 1909, until his present appointment as assistant to second vice-president, giving special attention to all matters pertaining to maintenance of way and structures.

Operating Officers.

M. W. Jones, acting trainmaster of the Guayaquil & Quito, has been appointed trainmaster, with headquarters at Huigra, Ecuador.

H. F. Burch has been appointed assistant trainmaster of the Saratoga division of the Delaware & Hudson with office at Albany, N. Y.

J. P. Linton has been appointed general manager of the Blakely Southern Railroad, with office at Blakely, Ga., succeeding E. Morris, resigned to go to another company.

M. L. Masteller has been appointed superintendent of the Mexico North-Western, with office at Madera, Chih., Mexico, succeeding D. F. Bucher, resigned on March 31.

E. E. Gray, chief despatcher of the First division of the Denver & Rio Grande, at Pueblo, Colo., has been appointed assistant superintendent of the Third division, with headquarters at Gunnison.

A. E. Fontaine has been appointed chief train despatcher of the Quebec, Montreal & Southern and the Napierville Junction, with office at Sorel, Que., succeeding W. M. Ross, resigned to go to the Canadian Northern Quebec.

M. V. Hynes, engineer of maintenance of way of the Cincinnati, Hamilton & Dayton at Cincinnati, Ohio, has been appointed superintendent, with office at Dayton, Ohio, succeeding E. E. Cain, resigned to go with the Pere Marquette.

A. B. Apperson, general superintendent and traffic manager of the Castle Valley Railroad at Salt Lake City, Utah, and formerly division superintendent of the Denver & Rio Grande, has been appointed general superintendent of the Utah lines of the Denver & Rio Grande, with office at Salt Lake City, succeeding J. W. Mulhern, resigned.

W. L. Blair, superintendent of transportation of the New York, Chicago & St. Louis, at Cleveland, Ohio, has been appointed assistant to the general manager. R. W. Mitchener, superintendent of the Cleveland division, at Cleveland, succeeds Mr. Blair, and G. C. Todd, superintendent of telegraph at Cleveland, succeeds Mr. Mitchener.

A. V. Brown, superintendent of the Montana division of the Northern Pacific at Livingston, Mont., has been appointed superintendent of the Lake Superior division, with office at Duluth, Minn., succeeding K. M. Nicoles, transferred. B. O. Johnson, superintendent of the Fargo division at Dilworth, Minn., succeeds Mr. Brown, and K. M. Nicoles succeeds Mr. Johnson.

M. E. Lucas, trainmaster of the Rock Island lines, in charge of subdivision 50 of the Indian Territory division at Haileyville, Okla., has been appointed trainmaster, with office at El Reno, Okla., succeeding H. G. Clark, promoted; and H. F. Reddig, trainmaster at Haileyville in charge of subdivision 49, 49-A, 50-A and 50-B, has had his jurisdiction extended to cover subdivision 50, succeeding Mr. Lucas.

A change has been made in the operating organization of the Pere Marquette by which the S. T. & H. division and the Ionia territory have been combined as the Saginaw-Ionia district; and the line from Toledo to Bay City, Saginaw to Ludington and the Saginaw terminals have been made the Toledo-Ludington district. A. R. Merrick, superintendent of the Saginaw division at Saginaw, has been appointed superintendent of the Saginaw-Iowa district, with office at Saginaw, succeeding J. E. Church, assigned to other duties, and the office of superintendent at Ionia, Mich., has been abolished. E. E. Cain, superintendent of the Cincinnati, Hamilton & Dayton at Dayton, Ohio, has been appointed superintendent of the Toledo-Ludington district, with office at Saginaw, succeeding Mr. Merrick.

William J. English, whose appointment as superintendent of the Susquehanna and Tioga divisions of the Erie Railroad, with headquarters at Hornell, N. Y., has been announced in these columns, was born in February, 1874, at East Mauch Chunk, Pa., and was educated in the common schools. Mr. English began railway work in March, 1888, as a telegraph operator on the Lehigh Valley, and remained with that company until 1893, when he went to the Erie in the same capacity, and ever since has been in the service of that company. In 1901, he was promoted to despatcher, and three years later was made chief despatcher, becoming trainmaster in 1907. Mr. English was appointed assistant superintendent in 1911, with headquarters at Jersey City, N. J., which position he held at the time of his recent appointment as superintendent, as above noted.

John B. Hammill, whose appointment as superintendent of the Boston division of the Boston & Albany, with headquarters at Boston, Mass., has been announced in these columns, was born in July, 1874, at Needham, Mass., and was educated in the public schools. He entered the service of the Boston & Albany at the age of 18 as a telegraph operator, and soon afterwards became train despatcher, from which position he was promoted in February, 1904, to trainmaster, with headquarters at Boston. For about two years he was passenger trainmaster, with authority over the entire system from Boston to Albany, which position he held until his recent appointment as superintendent of the Boston division of the same road. Mr. Hammill will have charge of all the main line and of the branches between Boston and Springfield.

J. B. Hammill.

Charles A. Allen, whose appointment as assistant to the general superintendent of the Erie Railroad, with office at Galion, Ohio, has been announced in these columns, was born on a farm near Paris, Ill., and was educated in the country schools. Mr. Allen began railway work in 1872 as a laborer on the Indianapolis & St. Louis, and was afterwards trainman, brakeman and conductor on that road until it was absorbed by the Cleveland, Columbus, Cincinnati & Indianapolis, which later became a part of the Cleveland, Cincinnati, Chicago & St. Louis. He was then appointed assistant trainmaster of the St. Louis division of the Cleveland, Cincinnati, Chicago & St. Louis, and was later made trainmaster of the Indianapolis division. He left that company to go to the New York, Pennsylvania & Ohio, and ever since has been in the service of that company and its successor, the Erie Railroad. He was trainmaster of the Third and Fourth divisions at Galion, Ohio, for four years, then superintendent of these divisions, and at the time of his recent appointment as assistant to the general superintendent, he was superintendent of the Cincinnati division of the Erie.

C. A. Allen.

W. S. Becker, whose appointment as general superintendent of the Western General division of the Norfolk & Western, with office at Bluefield, W. Va., has been announced in these columns,

was born in 1857, at Selma, Ala. In 1879, he began railway work as a brakeman on the Union Pacific, and became a conductor in 1880. He went to the Yellowstone division of the Northern Pacific in 1882, and held various positions with that company until he was made assistant superintendent in 1891. He entered the service of the Norfolk & Western as assistant trainmaster of the Pocahontas division in 1898, and a few months later was promoted to trainmaster on the Radford division, and in 1901 was made chief clerk to L. E. Johnson, then general manager. In 1903 he was promoted to superintendent of the Norfolk division. He was transferred in August, 1905, as superintendent to the Pocahontas division, which position he held at the time of his recent appointment as general superintendent as above noted.

Traffic Officers.

H. R. Whiting has been appointed commercial agent of the Louisiana & Arkansas, with office at Alexandria, La., succeeding H. D. Graham, resigned.

C. B. Woodul has been appointed assistant general freight and passenger agent of the Muscatine North & South, with headquarters at Muscatine, Iowa.

R. N. Golden has been appointed traveling agent of the Chicago & North Western, with headquarters at Cincinnati, Ohio, succeeding J. A. Ritchie, deceased.

E. G. Hayden, traveling passenger agent of the Chicago, Milwaukee & St. Paul at Cleveland, Ohio, has been appointed district passenger agent, with office at Cleveland.

James B. Blanton has been appointed soliciting freight agent of the Texas & Pacific, with office at Dallas, Tex., succeeding W. M. Bottorff, resigned to engage in private business.

F. P. Crawford has been appointed division freight and passenger agent of the Chicago Great Western, with headquarters at Chicago, succeeding George A. Smith, resigned to engage in other business.

W. L. Griner, soliciting freight agent of the New York Central Lines at Salt Lake City, Utah, has been appointed traveling freight agent, in charge of the company's wool business. LeRoy Adamson succeeds Mr. Griner.

J. T. Bridwell, traveling freight agent of the Illinois Central at Cleveland, Ohio, has been appointed commercial agent, with office at Cleveland, succeeding E. Doul, deceased, and E. W. Stafford succeeds Mr. Bridwell.

C. H. Gulick, soliciting freight agent of the Lehigh Valley, at Auburn, N. Y., has been appointed commercial agent, with office at Newark, N. J., succeeding A. B. Walmsley, resigned. D. J. Sims succeeds Mr. Gulick.

O. F. Higginson, formerly trainmaster on the Albuquerque division of the Atchison, Topeka & Santa Fe Coast lines at Winslow, Ariz., has been appointed passenger and freight agent, with headquarters at San Diego, Cal.

J. D. Boylston, traveling freight agent of the Atlanta, Birmingham & Atlantic, at Atlanta, Ga., has been appointed commercial agent, with office at Nashville, succeeding M. S. Flanigan, resigned to go into other business, and M. M. Sanders has been appointed soliciting freight agent, with office at Nashville, succeeding Raymond Boatwright.

J. E. Anderson has been appointed commercial agent of the Cleveland, Cincinnati, Chicago & St. Louis, with office at Detroit, Mich., succeeding H. H. Squire, resigned. G. C. Chamberlain, soliciting freight agent at Chicago, has been appointed traveling freight agent, with office at Chicago, succeeding H. T. Yeaton, promoted. E. C. Bywater succeeds Mr. Chamberlain.

W. H. Morton, soliciting agent of the Louisville & Nashville, at Nashville, Tenn., has been appointed traveling freight agent, with office at Kansas City, Mo., succeeding H. D. Hughes, resigned to engage in other business. Leo Bolster succeeds Mr. Morton, with office at Nashville. H. S. Daniels, contracting agent at Atlanta, Ga., has been appointed general agent, with headquarters at Knoxville, Tenn., succeeding J. P. McBride, deceased; and A. L. Burnet succeeds Mr. Daniels.

C. A. Sullivan, commercial agent of the Wheeling & Lake Erie at Cleveland, Ohio, has been appointed general agent, with office at Toledo, Ohio, and the joint freight agency of the W. & L. E. and the Wabash at Toledo has been abolished. R. F. Smith, traveling freight agent at Cleveland, succeeds Mr. Sullivan; and W. D. Morley, chief contracting agent at Cleveland, succeeds Mr. Smith. M. A. Hagerty, contracting freight agent at Detroit, Mich., has been transferred to Toledo.

A. J. Morriss, traveling freight agent of the Houston & Texas Central at Dallas, Tex., has been appointed traveling freight agent of that road, the Galveston, Harrisburg & San Antonio, the Texas & New Orleans, the Houston East & West Texas and the Houston & Shreveport, with office at Houston, Tex. As has been announced in these columns, R. E. Lay has been appointed traveling freight agent at Dallas, succeeding Mr. Morriss. C. M. Reeves, city ticket agent at Austin, Tex., has been appointed division freight and passenger agent, with headquarters at Austin, succeeding W. R. Smith, promoted.

W. C. Lewis, division freight agent of the Michigan Central at Chicago, has been appointed division freight agent, with office at Bay City, Mich., succeeding J. A. Ferguson, resigned, and G. M. Weaver, assistant general freight agent at Detroit, Mich., succeeds Mr. Lewis. As has been announced in these columns, F. H. Thompson, general agent at Detroit, has been appointed assistant general freight agent, succeeding Mr. Weaver. R. P. Hurley, commercial agent of the Lake Shore & Michigan Southern at Toledo, Ohio, succeeds Mr. Thompson. This corrects the item in our issue of May 24, page 1178, which stated that William Rogers succeeded Mr. Thompson and that Mr. Weaver had been made district freight agent.

Guy Tombs, general freight and passenger agent of the Canadian Northern lines east of Ottawa, Ont., in Ontario and Quebec, with office at Montreal, Que., has been appointed general freight agent. R. L. Fairbairn, assistant general passenger agent, at Toronto, Ont., has been appointed general passenger agent, with office at Toronto, and James Morrison has been appointed assistant general passenger agent, with office at Montreal. F. A. Young, commercial agent at Chicago, has been appointed division freight agent at Toronto. R. H. Bell, commercial agent at Pittsburgh, Pa., has been appointed general agent at Chicago. A. E. Hodgins has been appointed general agent at Pittsburgh. J. H. McKinnon, commercial agent at St. Paul, Minn., has been appointed general agent, with office at St. Paul, and John A. Tait, city freight agent at Regina, Sask., has been appointed district freight agent with office at Regina.

Engineering and Rolling Stock Officers.

Glenn Warner has been appointed fuel inspector of the Pere Marquette, with office at Detroit, Mich.

Peter McQuaid, roundhouse foreman of the Prince Edward Island Railway, has been appointed master mechanic, with office at Charlottetown, Prince Edward Island.

J. E. Tierney has been appointed master mechanic of the Louisiana & Arkansas, with office at Stamps, Ark., succeeding A. J. Wade, resigned on account of ill health.

T. S. Murray, roadmaster of the Mexico North-Western at Madera, Chih., has been appointed general roadmaster, with office at Ciudad Juarez, Chih., succeeding A. Howren, resigned.

Samuel G. Thomson, acting superintendent of motive power and rolling equipment of the Philadelphia & Reading, and subsidiary companies, at Reading, Pa., has been appointed superintendent of motive power and rolling equipment, with office at Reading.

M. V. Hynes, engineer of maintenance of way of the Cincinnati, Hamilton & Dayton at Cincinnati, Ohio, having been promoted to superintendent, H. B. Dick, engineer of maintenance of way of the Baltimore & Ohio at Cincinnati, has had his jurisdiction extended over the C. H. & D.

J. R. Stephens, whose appointment as chief engineer of the Missouri Pacific-Iron Mountain system, with office at St. Louis, Mo., has been announced in these columns, graduated from the Stevens Institute of Technology in 1878. He began railway work with the Oregon Railway & Navigation Company in 1880, and has been engaged in railway engineering work ever since, having worked in various parts of the United States and Canada, as well as in South Africa and Mexico. He was with the Northern Pacific for a time; also with the Atchison, Topeka & Santa Fe,

the Denver & Rio Grande and the Grand Trunk. About a year ago Mr. Stephens was appointed assistant chief engineer of the Missouri Pacific-Iron Mountain system, from which position he has just been promoted to chief engineer.

Purchasing Officers.

D. A. Williams, general storekeeper of the Baltimore & Ohio, at Baltimore, Md., has had his authority extended over the Cincinnati, Hamilton & Dayton.

Special Officers.

A. McFatridge, agent of the Southern Railway at Princeton, Ind., has been appointed inspector of agencies, with headquarters at Mount Vernon, Ill., his territory to include all stations on the St. Louis division between St. Louis and Louisville.

OBITUARY.

James K. Geddes, general manager and chief engineer of the Ohio River & Western, with office at Woodsfield, Ohio, died on June 6, at his home in Zanesville.

Thomas C. Burke, traveling passenger agent of the Baltimore & Ohio, at Wheeling, W. Va., died on June 1, at his home at Elm Grove, a suburb of Wheeling.

W. A. Amory, assistant auditor of the Chicago, Burlington & Quincy lines east of the Missouri river, with office at Chicago, died at his home in Chicago on June 9. He was 74 years of age.

James Stephenson, formerly for a number of years general superintendent of the Grand Trunk, with headquarters at Montreal, Que., died recently at Walton Park, near Cleveden, England, where he had lived since his retirement from the Grand Trunk service. Mr. Stephenson was born in 1838, and was educated in England. He went to Canada in 1856, and entered the service of the Grand Trunk as a telegraph operator. Mr. Stephenson held various positions, finally rising to be general superintendent. He was retired under the pension rules of the company about 14 years ago.

A preliminary survey is being made of the country between Karachi, India, and Guadur, over which a part of the projected Trans-Persian railway will be built if the Russian and British governments can agree upon conditions.

Surveys have been completed for the railway between Bagdad, Asiatic Turkey, and Mosul. A large corps of engineers has been in Bagdad all winter and expects to start construction work at Bagdad by July 1 and build toward Mosul, whether the plans have been approved by that time or not. Three or more vessels will be put on the Tigris by the construction company to carry the supplies.

The engineers are still at work surveying for a railway from the Red Sea at Jedda, Arabia, eastward some 50 miles to Mecca, the route over which pilgrims pass who arrive by sea. Nothing is now said of the extension of the Hedschas railway from Medina southward to Mecca, some 250 miles, which was part of the original plan of this line, planned wholly for the use of pilgrims. Nearly the whole length of this line, from a point a little south of Damascus, is over desert. The travel over it in the five years it has been open has been disappointing. In this time 205,000 pilgrims from the North visited the holy cities, of whom 160,000 came by water to Jedda, and only 45,000 by the Hedschas railway. On their return 75,000 took the railway and 110,000 the steamers.

A bill has been introduced in the Roumanian parliament authorizing the district of Prahova to grant a concession for constructing and operating an extension of the private railway from Ploeshti to Valeni de Munte as far as Maneciu-Ungureni, and to contract a loan of $500,000 for the purpose, which is to be issued as necessary. The new line is to be built in two sections, from Valeni to Homoraeni and from Homoraeni to Maneciu-Ungureni, and work on the second section is not to begin until after the first is in operation. The estimated cost of the first section is $360,000 and of the second section $240,000, the income derived from the whole line from Ploeshti being applied in connection with the proceeds of the loan. The object is to open up additional petroleum lands.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE KANSAS CITY SOUTHERN has ordered one Shay locomotive from the Lima Locomotive & Machine Company. This will be the largest Shay locomotive ever built. It will weigh 330,000 lbs., and will be built to move 250 tons around a city street corner with a 60-deg. curve on a 7 per cent. grade.

CAR BUILDING.

THE DELAWARE, LACKAWANNA & WESTERN is in the market for 8 passenger cars.

THE HAVANA CENTRAL has ordered 100 box cars from the Standard Steel Car Company.

THE COLD BLAST TRANSPORTATION COMPANY, Chicago, is in the market for 350 refrigerator cars.

THE CANADIAN NORTHERN is said to be in the market for freight cars. This item has not been confirmed.

THE CHICAGO & ALTON is in the market for 9 refrigerator cars, 26 box cars, 4 stock cars, 26 automobile cars, 3 furniture cars and 5 flat cars, to replace equipment destroyed in wrecks or by fire.

THE ILLINOIS CENTRAL has ordered 2,500 steel gondola cars as follows: From the American Car & Foundry Company, 1,000; from the Standard Steel Car Company, 750, and from the Pressed Steel Car Company, 750.

THE NORFOLK & WESTERN has ordered 10 postal cars, 8 combination baggage and mail cars and 6 combination baggage and express cars from the Pressed Steel Car Company; also 35 coaches and 5 combination passenger and baggage cars from the Harlan & Hollingsworth Corporation. These cars are all-steel, and are the first all-steel cars to be ordered by the Norfolk & Western.

IRON AND STEEL.

THE GRAND TRUNK PACIFIC has ordered 10,000 tons of rails.

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered 15,000 tons of rails, and 1,000 tons of bridge material.

THE BOSTON & ALBANY has received bids for 600 tons of bridge material.

THE HARRIMAN LINES have given a supplementary order for 6,000 tons of rails.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered 6,000 tons of bridge material.

THE CHESAPEAKE & OHIO has received bids for 8,000 tons of steel to be used on coal piers.

THE LOUISVILLE & NASHVILLE has ordered about 8,000 tons of structural shapes for bridge work.

THE BRIDGE DEPARTMENT, New York City, is asking for bids on 1,400 tons of rolled and cast steel for subway construction in connection with the Manhattan terminal of the Brooklyn bridge.

GENERAL CONDITIONS IN STEEL.—The May statement of the United States Steel Corporation shows unfilled orders of the subsidiary companies on May 31 amounting to 5,750,983 tons, an increase of 86,983 tons during the month. The new business exceeded shipments at the rate of a little over 3,000 tons a day. The shipments during the month were heavy, averaging about 42,000 tons a day, and the average daily production was at the rate of about 92 per cent. of the total capacity. Since the first of June less new business is coming from the railways and structural orders are also much less after the recent very large bookings.

Supply Trade News.

The Pittsburgh Testing Laboratory, Pittsburgh, Pa., has opened a branch office at 204 White building, Seattle, Washington, in charge of C. A. Perkins, district manager.

R. A. Dugan, in charge of the sales department of the Chicago office of the Scullin-Gallagher Iron & Steel Company, St. Louis, Mo., has been made district manager, with office at 1049-50 McCormick building, Chicago.

The Vulcan Iron Works, Wilkesbarre, Pa., has received orders from the Read Construction Company, Quinebaug, Conn., for two locomotives with 11 in. x 16 in. cylinders, and from the Purcell Construction Company, Taft, Tenn., for four 10 in. x 16 in. locomotives.

The H. W. Johns-Manville Company, New York, has moved its Winnipeg, Manitoba, offices to 92 Arthur street. This is a six-story and basement building, 50 ft. wide and 100 ft. deep, and will be occupied throughout by the company's offices and storerooms. The office force will be increased.

The Jacobs-Shupert U. S. Firebox Company announces that it will make a public test of a firebox at its works at Coatesville, Pa., on Thursday afternoon, June 20. This is one of the series of tests being made under Dr. W. F. M. Goss. A radial stay boiler will also be tested (to failure) at the same time.

The Cincinnati Locomotive & Car Works has been incorporated in Ohio with a capitalization of $25,000, to make and repair locomotives, cars, machinery and general railway equipment at Cincinnati. The incorporators are John Glenn of Ludlow, Ohio, and William Edwards and Daniel Goldstein of Cincinnati.

Burton W. Mudge & Company, of Chicago, are planning to open an office in New York City. The item published in this column last week implying that this firm already had an office in New York was incorrect. Robert M. Smith, who has been appointed sales manager with office at Chicago, has only recently come to this firm.

The following companies, which are controlled by the same interests, have moved their general offices to the new Vanadium building, Forbes and Meyran avenues, Pittsburgh, Pa. The American Vanadium Company; the Vanadium Sales Company of America; the Flannery Bolt Company; the Vanadium Metals Company; the J. Rogers Flannery & Company, and the Keystone Nut Lock Mfg. Company.

The Eastern Car Company, recently incorporated with a capitalization of $2,500,000 as a subsidiary of the Nova Scotia Steel & Coal Company, advises that its intention is to erect a modern steel freight car plant at New Glasgow, Nova Scotia, with a capacity of 25 cars a day. Plans are now being prepared, and it is expected that the work will be commenced within two weeks. From 800 to 1,000 men will be employed. The plant will be located immediately adjoining the mills of the Nova Scotia Steel & Coal Company.

At the annual meeting of the Barney & Smith Car Company, at Dayton, Ohio, June 4, the following officers and directors were elected: President, H. M. Estabrook; vice-president and general manager, A. J. Stevens; second vice-president and treasurer, J. F. Kiefaber; secretary and assistant treasurer, E. A. Oblinger; assistant secretary, E. H. Sines; and directors, Walter St. J. Jones, J. Rawson, John L. Lincoln and John M. Wright, Cincinnati, and Eugene J. Barney, E. Frank Platt, H. M. Estabrook, A. J. Stevens and J. F. Kiefaber, Dayton.

Charles Singleton Sweet, assistant to the president of the Pullman Company, Chicago, died at his residence in Oak Park on June 7. Mr. Sweet was born at Mt. Sterling, Ill., November 3, 1848, graduated from the old Chicago University and the Columbia Law School, and entered the law office of Isham & Lincoln. When Robert T. Lincoln, who later became president of the Pullman Company, was appointed Secretary of War, Mr. Sweet became his secretary and continued in the same capacity for William C. Endicott, secretary of war. For two years he was secretary of the Chicago, Santa Fe & California railway, and then became private secretary to George M. Pullman, continuing in the same capacity when Mr. Lincoln became president. Later he was made assistant to the president. He had been in the service of the Pullman Company for 22 years.

Railway Construction.

New Incorporations, Surveys, Etc.

Alberta Pacific.—See Western Dominion.

Baltimore & Ohio.—An officer writes that a sub-contract has probably been given to Fred Schusley for grading the roadbed for two westbound set-off tracks at Sand Patch, Pa. F. L. Stuart, chief engineer, Baltimore, Md.

Beersville Coal & Railway Company.—See North Shore Railway & Navigation Company.

Boston & Maine.—An officer writes that surveys have been made for the line from Windsor, Vt., north to White River Junction, but contracts for this work have not yet been let. A contract was given recently to Holbrook, Cabot & Rollins, to build from Hinsdale, N. H., to Brattleboro, Vt., about ten miles.

Canadian Pacific.—This company has secured control of the Kaslo & Slocan, which operates 23 miles from Kaslo, B. C., south to McGuigan, and has entered into an agreement with the British Columbia government to reconstruct the line from Kaslo to Bear Creek, making the line standard gage. J. G. Sullivan, chief engineer, Western Lines, Winnipeg, Man.

Chicago, Milwaukee & Puget Sound.—This company is now at work with its own men on the tunnel through the Cascade mountains, Wash., to secure easier grades. The tunnel will be 11,400 ft. long. E. O. Reeder, chief engineer, Seattle, Wash. (April 26, p. 982.)

According to press reports, contracts have been given to build 140 miles of new line in Montana, as follows: To Winston Brothers, Minneapolis, Minn., to build from Great Falls southeast towards Lewiston and to Twohy Brothers, Spokane, Wash., to build from Lewistown northwest towards Great Falls. There will be six tunnels on the line, the longest about 1,900 ft. long. (June 7, p. 1262.)

Cincinnati, New Orleans & Texas Pacific.—An officer writes that this company has under consideration the question of double tracking the line between Erlanger, Ky., and Williamstown, 28 miles, also some double tracking north of Chattanooga, Tenn., about two miles. The surveys are not yet finished. C. Dougherty, chief engineer, Cincinnati, Ohio. (June 7, p. 1262.)

Elberton & Eastern.—An officer writes that preliminary surveys will be made within the next 90 days for a line from Tignall, Ga., east to Lincolnton, about 20 miles. A contract has been given to J. Y. Cogan, Elberton. W. O. Jones, president; A. W. Wilson, chief engineer, Elberton. (June 7, p. 1262.)

Grand Trunk.—This company has decided to lay 100-lb. rail on the line between Woodstock, Ont., and Sarnia, about 100 miles. The work is to be started soon.

The governor of Massachusetts has signed the Southern New England bill, giving permission to this company to build from the New Hampshire line to Boston. (June 7, p. 1262.)

Gulf, Texas & Western.—Arrangements have been made to build an extension from Jacksboro, Tex., south to Salesville, 23½ miles. The work is to be started within 90 days. E. B. Cain, vice-president and general manager, Dallas. (April 12, p. 871.)

Kansas, Oklahoma & Southwestern.—According to press reports, the Continental Construction Company has been given a contract to build between Caney, Kan., and Siloam Springs, Ark., 100 miles; also between Caney and Pawhuska, Okla., 40 miles. About 30 miles of grading has been finished. R. E. Wade and S. A. Masters, Perry, Okla.; J. H. Brewster and F. D. Brewster, Independence, Kan.; and S. M. Porter, Caney, are the promoters. (May 31, p. 1221.)

Kaslo & Slocan.—See Canadian Pacific.

Lake Erie & Northern (Electric).—Announcement has been made that this projected line from Brantford, Ont., to Port Dover and to Galt, is now assured, provided by-laws carry in the various municipalities for debenture stock. Bonds to the value of $1,100,000 have been purchased by Montreal banks. Local men

will purchase $275,000 of the $500,000, or 5 per cent. stock, while the remainder will be sold to the municipalities along the line. The line when completed, exclusive of equipment, will cost about $2,000,000, and will be closely affiliated with the Canadian Pacific through a traffic agreement. The directors are: John Muir, president; John Sanderson, W. P. Kellett, Harry Cockshutt, Lloyd Harris and Richard Thompson. W. P. Kellett, chief engineer, Brantford. (February 16, p. 321.)

MEXICAN ROADS.—Application has been made to the federal government by the Mexican Construction Company for a concession to build a railway from Pachuca, Mex., north to the town of Metztitlan in the state of Hidalgo, about 30 miles.

MIRAMICHI VALLEY.—Incorporated in New Brunswick, to build from Newcastle, N. B., or from a junction with the Intercolonial near that place, northeast along the Miramichi river to Tracadie, about 50 miles. The provisional directors include J. Robinson, E. A. McCurdy, D. Morrison, W. L. Allen, W. A. Park, E. H. Sinclair and A. Richie.

NORTH SHORE RAILWAY.—See North Shore Railway & Navigation Company.

NORTH SHORE RAILWAY & NAVIGATION COMPANY.—Incorporated in New Brunswick, to build from a point near Adamsville, N. B., on the Intercolonial, to a point near Snowshoe lake, and from Beersville to Richibucto Head, with a branch from Harcourt southwest to the Salmon river, also other branch lines. The company has authority to take over the North Shore Railway, which was formerly the Beersville Coal & Railway Company, extending from Adamsville northeast to Beersville with a branch from Beersville to Mt. Carlyle. The provisional directors include G. W. Fowler, Sussex, N. B.; M. F. Keith, Moncton; A. B. Carson, Rexton; H. J. VanHazen, E. E. Smith, New York; J. H. Wood and W. A. P. Davis, Philadelphia, Pa.

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—A contract has been given to Flagg & Standifer, Portland, Ore., for track laying between Spokane, Wash., and Ayer Junction, 102 miles.

PACIFIC GREAT EASTERN.—Financial arrangements are said to be made to build from Vancouver, B. C., north to the Grand Trunk Pacific at Fort George, and work will be started at a point near North Vancouver this month. J. W. Stewart, of Foley, Welch & Stewart, St. Paul, Minn., may be addressed.

SASKATOON TRANSFER.—The plans call for lines connecting the Canadian Pacific with the Grand Trunk Pacific and the Canadian Northern, passing through a manufacturing district in West Saskatoon, Sask. The company expects to complete its organization and start construction work by July. The provisional directors include C. I. Alexander, L. N. LeValley and J. G. Hill, Saskatoon.

SOUTHERN NEW ENGLAND.—See Grand Trunk.

ST. LOUIS, BROWNSVILLE & MEXICO.—An officer writes that a grading contract has been given to P. G. Burns, and a contract for the bridge-work to W. J. McMurray, on the branch under construction from Heyser, Tex., to Austwell. There will be one steel bridge over Guadalupa river. F. G. Jonah, chief engineer, St. Louis, Mo. (May 31, p. 1221.)

TEXAS ROADS (Electric).—According to press reports, F. J. Wade, of the Mercantile Trust Company, St. Louis, Mo., is back of a project to build an electric line from Fort Worth, Tex., west to Mineral Wells, 70 miles. The total cost of the line will be about $1,000,000. Four routes have been surveyed. Dr. W. E. Brown, Fort Worth, may be addressed.

TIDEWATER SOUTHERN (Electric).—An officer writes that the plans call for building a line from Stockton, Cal., south via Escalon, Modesto, Turlock, Merced, Madera and Kerman to Fresno. A number of branch lines are to be built south and west as follows: To Manteca, to Ripon, to a point northwest of Modesto, to Patterson, and from a point northwest of Turlock southwest via Newman to Los Banos. A branch is also projected east to Oakdale. Work is now under way from Stockton south to Turlock, 51 miles. Grading on this section is nearing completion, and track has been laid on 13 miles. The maximum grades will be .5 per cent., and maximum curvature, except in towns, 6 deg. At the Stanislaus river crossing a steel bridge having two spans, each 123 ft. 6 in. long, is nearing completion. The Shattuck & Edinger Company are the contractors. There will also be a steel bridge over Tuolumne river. J. H. Wallace, chief engineer, Stockton. (May 24, p. 1181.)

WESTERN DOMINION.—Incorporated in Canada, to build from near Cardston, Alta., northwest via Pincher Creek to the Canadian Pacific Crow's Nest Pass branch at Lundbrek, thence northerly via Calgary and Edmonton to Fort St. John, B. C., with a branch from Pincher Creek to Oldman river. This project was formerly known as the Alberta Pacific, and the new company has power to take over the charter of that company. Surveys will be made soon for the section from Pincher Creek to Calgary. The provisional directors include J. E. Asquith, O. F. Culbert, Ottawa; H. McI. MacCallum, Regina, Sask.

RAILWAY STRUCTURES.

CLAYTON, N. Y.—Applications have been made to the New York Public Service Commission, Second district, for the elimination of grade crossings over the New York Central & Hudson River, on the Rome, Watertown & Ogdensburg division, at Clayton, Jefferson county, also at Reading, Schuyler county.

DECATUR, ILL.—Receiver F. A. Delano, of the Wabash, says that plans are under discussion for the construction of new shops at Decatur, to cost perhaps $750,000.

DENVER, COLO.—The Union Pacific is making extensive improvements in its shops at Denver, formerly leased by the Pullman Company, so that they will be able to handle general locomotive repair work for the Colorado division, thus saving the cost of sending locomotives a long distance to other shops. It is planned to have the improvements in operation early in July, including a 10-pit machine shop, and a locomotive blacksmith and boiler shop with a capacity for making heavy and general repairs to about 15 engines a month. About $90,000 has been expended on modern motor-driven tools arranged for group motor drive. A new modern power house equipped with water tube boilers, filters and coal and ash-handling machinery is also to be built at this point.

DETROIT, MICH.—A contract has been given to the Roberts & Schaefer Company, Chicago, by the Michigan Central, for putting up a 300-ton Holmen station at Detroit.

DULUTH, MINN.—A contract has been given to the Roberts & Schaefer Company, Chicago, by the Clarkson Coal & Dock Company, for the design and for building a large traveling coal bridge at Duluth, to cost about $100,000.

GAINESVILLE, GA.—An officer of the Southern Railway writes that the passenger and freight station facilities are being improved at Gainesville. The work includes putting up a new passenger station of brick construction with tile roof, 34½ ft. x 133 ft. The present freight station is to be remodeled and enlarged, and the tracks re-arranged. (May 31, p. 1221.)

HARTSDALE, N. Y.—The New York Central & Hudson River is making plans for putting up a new station at Hartsdale. Work is now under way eliminating grade crossings at that place.

HAYTI, MO.—A contract has been given to the Roberts & Schaefer Company, Chicago, by the St. Louis & San Francisco, for putting up a 250-ton Holmen coaling station at Hayti.

NEW ORLEANS, LA.—It is reported that the Texas & Pacific has authorized the construction of a new passenger terminal estimated to cost about $2,000,000.

READING, N. Y.—See Clayton, N. Y.

REGINA, SASK.—Bids are in for putting up the Grand Trunk Pacific station at Regina, and it is expected that the work will be started at once. The estimated cost of the improvements is $175,000.

UTICA, N. Y.—The New York Public Service Commission, Second district, has ordered the elimination of grade crossings of the New York, Ontario & Western and the Delaware, Lackawanna & Western at Pleasant street, in Utica. The street is to be carried over the tracks by means of a steel viaduct and approaches.

Railway Financial News.

Artesian Belt Railroad.—The control of this company has been bought by the European Contract Syndicate for $600,000. It is understood that the San Antonio Chamber of Commerce will raise an additional $200,000 toward building a road, and will provide terminals in San Antonio, Tex.

Brooklyn Rapid Transit.—The bankers who are to handle the financing of the Brooklyn Rapid Transit subways and elevated roads—Kuhn, Loeb & Company, and the Central Trust Company, both of New York—may decide, it is thought, to take six-year 5 per cent. notes of a subsidiary company of the B. R. T., secured by collateral and guaranteed by the B. R. T., in place of bonds.

The Appellate Division of the New York Supreme Court has affirmed the decision in part of the lower court of the Brooklyn Heights suit against the Brooklyn City Railroad, giving the Brooklyn Heights Road $1,740,258 and interest. The B. R. T. claims a much larger interest and will, it is understood, appeal from this decision.

Canadian Pacific.—Stockholders of the Georgian Bay & Seaboard Valley, controlled by the Canadian Pacific, have authorized a mortgage to secure additional bonds for the completion and equipment of the line from Victoria harbor to a junction with the Ontario and Quebec.

See Quebec Central.

Central of Georgia.—The stockholders have approved an issue of $15,000,000 6 per cent. cumulative preferred stock, to refund the present outstanding $15,000,000 three series of income bonds. A meeting of stockholders has been called for July 18 to vote on a proposal to authorize the issue of $50,000,000 refunding 5 per cent. bonds. It is planned to issue only three or four millions at present. The present income bonds are secured by a mortgage which does not permit the capitalization of improvements and additions unless the full interests is being paid on these bonds. This led to numerous lawsuits and to the necessity of paying for improvements out of earnings.

Chicago & Alton.—This company is to issue $20,000,000 6 per cent bonds to be secured by a general mortgage. Of these bonds $4,500,000 have been bought, it is understood, by Kuhn, Loeb & Company for the account of the Union Pacific. The proceeds of these bonds are to pay for double track, more particularly on the Kansas City division, reducing grades, and enlarging terminals at Chicago, Kansas City and St. Louis. The remainder of the bonds not already underwritten will be sold from time to time. A large block of the preferred stock of the Chicago & Alton is owned by the Union Pacific, and on this investment the Union Pacific is not now receiving any interest.

Concord & Montreal.—Stockholders have authorized $1,500,000 additional class 4 stock, which is to be offered to stockholders at $160 per share.

Denver, Laramie & Northwestern.—The application for a receiver made by interests opposed to the present management of the D. L. & N., having been denied, "friendly" receivership proceedings have been brought to "protect the credit of the road."

Georgia Coast & Piedmont.—T. D. Rhodes has been elected a director and vice-president.

Interborough Rapid Transit.—The $170,000,000-53-year mortgage 5 per cent. bonds offered to bankers by J. P. Morgan & Co., have been over-subscribed, and it is understood that subscribers for small amounts will receive their allotments in full, and subscribers for large amounts will be cut down somewhat in their allotments.

Kansas City, Mexico & Orient.—R. L. Day & Co., Boston, have bought $1,000,000 5 per cent. receivers' certificates at about 98.52. They have also taken an option at what is said to be the same price on additional certificates, which may be used to build the sixty-three miles of line to Alpine, Texas, to form a connection at Alpine with the Southern Pacific.

Missouri & North Arkansas.—Francis Bros. & Company and the Mercantile Trust Company, both of St. Louis, are offering the unsold portion of $1,250,000 receivers' certificates of May, 1912-May 1, 1915, at 100. The total authorized issue of receivers' certificates is $2,500,000, of which $1,250,000 is now issued. The certificates are an absolute first lien on the entire property of the road which runs from Joplin, Mo., to Helena on the Mississippi river.

Missouri Pacific.—The resignation of F. T. Gates as a director, which is expected to take place shortly, is said to be partly on account of added duties that Mr. Gates will have to perform for John D. Rockefeller, owing to the resignation of Henry E. Cooper from the Standard Oil Company.

Justice Giegerich, of the Supreme Court of New York, has held, in the Missouri Pacific suit against the Mercantile Trust Company, that 7,450 shares of St. Louis, Iron Mountain & Southern stock, valued at $2,745,000, should be returned by the Trust company to the railway company. The stock was deposited in accordance with an agreement by which the Trust company was to certify to bonds to the amount of stock deposited, but there were 7,450 shares of stock deposited in addition to the amount against which bonds were certified.

New York, New Haven & Hartford.—The bill consolidating the Berkshire, Springfield and Worcester street railways has been passed by the Massachusetts legislature.

Pennsylvania Railroad.—Kuhn, Loeb & Company, New York, have bought $6,000,000 "Pennsylvania General Freight Equipment Trust" 4 per cent. certificates, dated June 1, 1912, maturing in ten equal annual instalments, from June, 1913, to 1922. The certificates are guaranteed principal and interest, by the Pennsylvania Railroad. The proceeds from the sale will be used to buy additional equipment for both the Lines East and Lines West.

Quebec Central.—The share and debenture holders, at a special meeting in London this week, unanimously ratified the lease of this road to the Canadian Pacific for 999 years. The Quebec Central extends from Harlaka, on the south side of the St. Lawrence river, five miles from Quebec, southwest to Sherbrooke, 137 miles, with a branch from Tring Junction to Megantic, 60 miles long, and another branch to St. Sabine, 55 miles long. The main line is a part of the through route from New York to Quebec.

Seaboard Air Line.—The new interests which have bought into Seaboard Air Line, as mentioned in these columns last week, have acquired $9,000,000 preferred stock and $12,000,000 common stock of the outstanding $23,894,000 preferred stock and $37,019,000 common stock. S. Davies Warfield has become chairman of the managers; and those associated with him are Frank A. Vanderlip, president of the National City Bank, New York; Albert H. Wiggin, president of the Chase National Bank, New York; Blair & Company, New York; Benjamin Strong, Jr., vice-president of the Bankers' Trust Company, New York; Charles H. Sabin, vice-president of the Guaranty Trust Company, New York; Samuel L. Fuller, of Kissel, Kinnicutt & Company, New York, and Roberts Walker, until recently president of the Rock Island Company.

Southern New England.—The Massachusetts House of Representatives has concurred in the amendments made by the Senate to the bill permitting this subsidiary of the Grand Trunk to build its line from Windsor, Vt., to Boston, Mass.; and the bill is now a law, having been signed by the governor.

Wabash-Pittsburgh Terminal.—See Wheeling & Lake Erie.

Wheeling & Lake Erie.—The minority stockholders held a meeting last week and elected a board of directors, which, in turn, elected Joseph Ramsey, president, and G. P. Rust, of Cleveland, and R. E. Slaven, of New York, vice-presidents. An executive committee was formed consisting of Mr. Ramsey, Mr. Slaven, F. E. Palmer, F. A. Henry and A. G. Webb. The minority stockholders claim that the stock held by Wabash-Pittsburgh Terminal, cannot legally be voted. The majority stockholders, represented by the W.-P. T. claim that the meeting last week was illegal, and that they will elect their own board of directors. B. A. Worthington is receiver and has charge of the road, and represents the choice of both majority and minority stockholders.